

**THE
RAILWAY GAZETTE**

A Journal of Management, Engineering and Operation
INCORPORATING

Railway Engineer • TRANSPORT • The Railway News

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DIESEL RAILWAY TRACTION SUPPLEMENT

The October issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

The Government Plan for Social Insurance

THE Government has now issued its White Paper outlining its social security scheme, which, in large measure, embodies the principles of the Beveridge Report. The scheme covers every man, woman, and child. Unemployment, sickness, and motherhood grants, family allowances, and pensions for widows and retired persons, and death grants are all included, and are to be paid for by compulsory weekly contributions ranging between limits of 4s. 2d. and 1s. 10d. by the recipients; employers will also contribute part of the cost. The cost, indeed, will be large; it will amount to £650,000,000 in the first year, of which the Exchequer will provide £352,000,000, or 54 per cent., and will rise to £731,000,000 in 10 years and to £831,000,000 a year by 1975. The White Paper, having laid down plans for a greatly increased charge on the nation's productivity, warns that "it will be for the nation to respond by a fresh outburst of that creative energy which . . . is vitally necessary in the years now before us." Undoubtedly, the scheme will make a further considerable addition to costs of industrial production. A new Ministry is to be created with a wide network of local offices. The effect of the scheme undoubtedly means further bureaucratic control and, perhaps, it would have been just as easy, and ultimately no more costly, to have given everyone from the age of 18 a fixed sum of, say, £2 a week. Those who wished to earn more would work; and the workers would be kept busy supplying the needs of the non-workers.

"Obsolete" Sections of Railway

In a recent letter to *The Times*, Major A. M. Lyons, K.C., M.P., puts forward the well-worn suggestion that in modernising the country's transport facilities particular attention should be paid to the elimination of those parts, now uneconomic, of the railway systems "which have already proved to be unable to perform their task as well as can be done by road transport." Major Lyons suggests that many branch lines, country stations, and so forth, must now represent a considerable burden on the railways, yet all their functions can nowadays be fulfilled more efficiently and economically by road transport. This is a suggestion which should best be addressed to the Ministry of War Transport, which, at present, is responsible for any closure of railway facilities which might be desirable. In any event, one of the lessons of the present war has been that numerous branch lines, which in peacetime might have been considered obsolete, uneconomic, or unnecessary, have been of great strategic value. The suggestion that "the railway companies should be enabled and encouraged to streamline their industry and concentrate on the traffics to which they are suited, without having to maintain facilities which are now quite uneconomic and very expensive to keep going" is too general to bear comment.

The Engineering Industry After the War

Lord Davidson, President of the Engineering Industries Association, in a letter in *The Times* has asked the Government to give information on which plans could be made for the future turnover to peace products. He points out that the change from war to peace is almost on us, and that, in the industrial field, perhaps the engineering industry will be affected more seriously than others. He suggests that the Government might answer at least some of the more urgent questions, of which he gives a list. These include a statement of the priority industries which will be the first to resume full civilian production; materials likely to be in short supply immediately after the war; manner of release of personnel; the order of priority in exports and methods of finance of exports to countries without immediately adequate financial resources; and whether industrial taxation is likely to be reformed. He also asks how the "break clause" in Government contracts will be worked and whether prompt payments will be made on account of claims. A point raised by Lord Davidson, which will appeal to many industrialists, is a request for enlightenment as to how the manufacturer can obtain information on matters such as the foregoing without having to make independent enquiries of different departments in different, or sometimes the same, Ministries, which often give contradictory replies.

South American Railway Orders for U.S.A.

According to Reuters, United States manufacturers have received orders aggregating several million dollars for locomotives, wagons, carriages, rails, and accessories from South American countries for delivery after the war. This is stated to be in line with long-term plans by some of the South American countries for considerable expansion of railway mileage, which reports put at from 25 to 100 per cent. over pre-war. Replacement of worn-out equipment is also a considerable factor in the

orders which have been placed. It is stated from New York that contracts have been placed for some 2,000 wagons of all types, and that inquiries indicate potential orders for at least 5,000 wagons within the next year. The United States administration, as we have previously pointed out, is adopting a far more realistic attitude towards post-war export trade than the British Government, which, while paying lip service to the need for a great expansion of exports after the war, is doing singularly little to assist British manufacturers to lay their plans. There will be no good grounds for complaint after the war if it is found that, because of dilatoriness and hesitancy in this country, important markets have passed to America, as a result of a progressive policy in trade development.

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Overseas Railway Traffics

Political considerations, and particularly the official attitude shown by the treatment of the Anglo-Argentine Tramways, have influenced the prices of stocks of the British-owned Argentine railways, notwithstanding the exceptionally good traffics recorded in the past two weeks of the financial year. The increases in receipts shown in the 10th and 11th weeks have amounted to £77,631 on the Central Argentine, to £40,800 on the Buenos Ayres Great Southern, to £33,780 on the Buenos Ayres Western, and to £31,980 on the Buenos Ayres & Pacific. Brazilian railway traffics have continued their substantial advances and the aggregate figure on the Great Western from January 1 to September 16, 1944, is now £786,500, an increase of £209,500. For the same period the Leopoldina has earned a total of £1,714,958, which represents a gain of £445,856. Slight improvements in United of Havana receipts in the past two weeks have reduced its aggregate decrease to £33,948. On the Central Uruguay the aggregate for the eleven weeks of the financial year is now £6,003 down.

	No. of week	Weekly traffics £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific* ...	11th	113,400	+ 15,000	1,242,660	+ 290,040
Buenos Ayres Great Southern* ...	11th	167,940	+ 23,640	1,830,960	+ 219,420
Buenos Ayres Western* ...	11th	71,340	+ 18,240	686,460	+ 136,680
Central Argentine* ...	11th	178,620	+ 39,159	1,891,311	+ 419,757
Canadian Pacific ...	37th	1,260,600	+ 62,200	44,578,800	+ 4,277,200

* Pesos converted at 16½ to £.

Two days' holidays on the Chilean section during the 37th week of the year presumably had some effect in bringing the traffic return down by £5,560. On the Taltal the aggregate for the nine weeks of the financial year shows a decrease of £4,195.

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The Maidstone Railway Centenary

Maidstone, the capital of the County of Kent, was one of those towns which, in the reign of King William IV, was by no means convinced that railways were an unmixed blessing. Accordingly, when George Stephenson projected a line in 1836 from London to Dover by way of Maidstone, the scheme was resisted in Maidstone on the grounds that the proposed railway would be detrimental to the River Medway trade and to other vested interests. Eventually, the line to Dover was built well to the south, and reached Headcorn in August, 1842, and a bus service was established between a station called Maidstone Road and the County Town. Almost immediately, a branch line was projected, and this opened on September 25, 1844, from Maidstone Road (then renamed Paddock Wood) to Maidstone (now Maidstone West) through Yalding, Watlingbury, and East Farleigh; the first train was hauled by the locomotive *Kentish Man*. The centenary of this event was celebrated on Monday by the opening of an exhibition in the Bantiff Gallery of the Maidstone Museum, by the Mayor of Maidstone (Alderman Sir H. Garrard Tyrwhitt Drake). This exhibition consists of nearly 80 old prints, photographs, models, and contemporary newspaper reports relating to the Maidstone branch. An admirable brochure is available (gratis) at the Exhibition. A brief account of the opening ceremony is given on page 317.

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British Railways and British Buses

Two years have now passed since more than 60 operators of public service vehicles in Great Britain formed the British Omnibus Companies Public Relations Committee with the object of providing a representative voice to proclaim the combined achievements of the industry and to speak with authority of its difficulties. A standard sign bearing a single-deck coach and the words "British Buses" was designed for insertion in all publicity matter, both national and local, issued by or on the authority of the committee, and a widespread prestige advertising campaign was launched. This campaign recently entered its third year, and now uses eight national newspapers and some 200 provincial newspapers, while certain popular periodicals have also

been carrying the publicity. In all, more than 4,000 appearances have now been obtained for the national advertisements. Now, an important new step has been taken by the arrangement of further co-operation with the main-line railways, of which the first step is the issue of road-rail prestige publicity matter by both interests, stressing the co-operation between British Railways and British Buses as vital links in the national effort (see page 319). Liaison has also been established with the Publicity Committee of the Municipal Passenger Transport Association. Close attention is being paid to the post-war re-establishment of the provincial bus industry as one of the committee's most important functions. The operators associated with the committee now total 61 companies owning more than 13,500 service vehicles.

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Transport Co-Ordination in Chicago

The intention in Chicago is that the elevated railway, the new underground railway, the surface tramways, and the bus services should all be operated by a new corporation to be known as the Chicago Transit Company, but it appears that the Municipal Authorities have no intention of enforcing this by securing compulsory powers, and hope to achieve unification through voluntary agreement. Construction of the underground railway system, which is briefly described in an article on page 306, is expected to do much towards furthering this project. The State Street Subway, as well as the completed portion of the Dearborn Street route, were designed and built by the Department of Subways & Superhighways of Chicago, with the co-operation of the Public Works Administration, and the State Street line, which is the only one at present in use, is being operated by rolling stock of the Chicago Rapid Transit Company. A further step towards unification was taken on October 1, 1943, when a new transfer system was inaugurated between the Chicago Surface Lines, the Chicago Rapid Transit Company (including the subway), and the Chicago Motor Coach Company. For a 10-cent fare a passenger may secure a transfer from the lines of any one of the three companies to the lines of either of the other two. He may also re-transfer once to the original line, providing he continues to travel in the same general direction.

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New Station for Johannesburg

In view of the rapid growth of Johannesburg and the increasing inadequacy of the existing station, the South African Railways Administration has had under review for some time the question of providing new railway facilities for the city. Fourteen plans have been considered by a special committee, of which the Assistant General Manager (Technical), South African Railways & Harbours, was Chairman, and on which the Johannesburg City Council was represented by one of its chief technical officers. The principal features of the plan which has been accepted by the Railway Administration are shown in the illustrations on page 310. We are indebted to the Administration for the photographs from which they have been reproduced. The scheme provides for a new main-line station, a European concourse, a separate native station and concourse, six additional platforms, extra tracks and a railway head office building. It may be recalled that reference has been made in our columns to the sports ground of the Wanderers Club, the existence of which was threatened by certain of the earlier schemes. The plan accepted, however, not only will leave the ground unaffected, but will enable the club to provide additional sporting facilities. In the *Bulletin* of the General Manager, South African Railways & Harbours, for May last, it is stated that the plan has been accepted in principle by representatives of the City Council, and that it has the merit of meeting all visible requirements for many years to come, although not unduly expensive.

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Street Traffic in Lisbon

Lisbon has no underground railway and during the war, because of the petrol shortage, its citizens have been dependent for local transport mainly on the trams operated by the Lisbon Electric Tramways Limited. The maintenance of a full and uninterrupted service during the past year notwithstanding the enormous increase of traffic and the difficulties and cost of obtaining the necessary material is therefore a matter on which the company may well congratulate itself. In the Chairman's statement accompanying the annual report it is pointed out that it is coal, and mainly British coal, which has saved Lisbon from what might have been a disaster. During 1943 the company carried 196 million passengers, 24 million more than in 1942, and 65 million in excess of the last pre-war year. As it has been impossible to increase the number of tramcars during the war, considerable overcrowding of the cars has resulted, but most passengers accept the inevitable with good humour, and the Portuguese Government is well satisfied with the way the service

has been maintained. While revenue increased by £146,978, expenditure has risen by £159,884, because of an increase of £65,000 in the wages bill, and increased charges for maintenance. Regarding bus services, the Chairman states that while the newer streets of Lisbon are admirably laid out, many of the older streets are not up to that standard and a motor bus service run over a paved surface is not so comfortable as a tram-car running on rails, nor is it so safe in steep and narrow streets.

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Portable Lighting for Locomotive Repair Depots

The efficient lighting of locomotive running sheds often provides difficulty. The general lighting of the usual works type is often not very effective, largely because of the narrowness of the spaces between adjoining engine roads, and in wartime the blackout has added further complications, even during the hours of daylight. At the present time, when the speedy overhaul of locomotives is a matter of even greater importance than usual, the evolution of a satisfactory system of lighting to enable this work to be done is a great help to efficiency at the running sheds. On the L.N.E.R., portable lighting equipment has been specially designed for the illumination of locomotives undergoing repairs, and six sets are to be tried out at various running sheds, with a view to more extensive use if they are found to be satisfactory. On page 308 some details are given of this equipment, which fits compactly on to a trolley for movement about the sheds. Special care has been taken to ensure that the equipment conforms to Home Office regulations.

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Amateur Locomotive Cleaners

It is not altogether unexpected, perhaps, that many locomotive "fans" should have welcomed with both hands the opportunity that wartime conditions have afforded of making a closer acquaintance with their favourite locomotives, as spare-time cleaners at engine-sheds. With many of them, also, it is evident that the pleasure of the experience has been considerably enhanced by the treatment that they have been accorded by the engine-shed staffs. Writing to our associated monthly, *The Railway Magazine*, one correspondent says of Nine Elms, Southern Railway, "From the very first I have been made to feel welcome, and have received nothing but kindly interest and courtesy from everyone there with whom I have come into contact. A more hardworking and thoroughly cheery crowd it would be difficult to find anywhere, and it is a tonic as well as a privilege to be among them." Of Kentish Town shed of the L.M.S.R. another correspondent writes that he found "the pay good, the canteen excellent, and footplate staffs usually very friendly. I can assure anyone who has leanings in this direction," he adds, "that his services will be warmly appreciated." A third correspondent wrote from Cardiff of the education as well as the pleasure that he was deriving from his work at the Canton shed of the G.W.R. Here a special pride is taken in the appearance of the "Castle" 4-6-0s used on the long-distance passenger work—as is evident to even a casual observer on the arrival in Paddington of South Wales trains that are provided with motive power from that shed—and one "Castle" that had been prepared for a Royal train was "a sight to gladden the eyes of any railway enthusiast."

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British Locomotives for South Africa

Nearly three months ago, Colonel Deney's Reitz, High Commissioner in London for the Union of South Africa, visited Manchester and drove one of the new locomotives that are being despatched to South Africa as shipping facilities permit. Thirty heavy locomotives have been ordered at an approximate cost of £800,000. As we recorded on September 15 (page 270), two locomotives have been delivered in the Union by Great Britain, and these are the first new locomotives received there since August, 1939, and the first addition to the locomotive power of the South African Railways & Harbours for five years. One is being assembled at Durban and the other at Cape Town. The new engines are of the "15F" class, intended principally for heavy goods traffic, but used also for certain passenger trains. At present, the railway administration has 65 of this class in service, and 75 are on order. The delivery of these locomotives fulfils a promise made by the British authorities when Mr. F. C. Sturrock, South African Minister of Transport, visited this country two years ago. Moreover, although it is the British policy to build only austerity engines during the war period, the two delivered to South Africa are stated to be practically identical with those of the pre-war period, and austerity features are limited to non-essential items. During the past five years, the available locomotive power in South Africa has had to be worked substantially beyond its normal capacity, and careful manipulation of resources has been necessary.

The Future of Inland Transport

UNDER this heading, *The Economist* published three articles on September 2, 9, and 16. They are linked to another series of articles entitled "A Policy for Wealth," which appeared in its pages recently and stressed the need for an increase in the productivity of industry. In that connection *The Economist* considers public transport as important because "something like a fifteenth of all private and public expenditure is spent upon it" and suggests that we need a policy which will ensure "through a flexible combination of facilities and adequate incentives, the most efficient service at the lowest possible total real cost at which it can be had within the limits of technical knowledge."

The first article analysed the facts of the situation existing before the war, and argued that the system of checks and balances between the various carrying agencies was not designed "to achieve the lowest possible total real cost of transport." As a study in transport economics, the article is useful, but cannot be correct in stating that, in order to slow down the rate of diversion of traffic from rail to road, the railways had to advance their charges. There was no change in standard freight rates from January 1, 1928, to October 1, 1937, when an increase of about 5 per cent. was made because trade had temporarily revived, and it was thought that net railway receipts would be improved without harming industry. In the intervening period numerous low exceptional rates had been quoted to retain traffic to rail and the average receipt per ton-mile had declined. As things turned out, 1938 was a very poor year for the railways.

When the article passes from facts to opinions, it offers plenty of room for debate, but we propose to deal with only one topic. The theory is propounded that there should be different treatment for competitive and non-competitive areas in framing a transport policy. The word "areas" appears to be used in two senses in defining non-competitive traffics, that is, those conveyed by local short-distance services and those which by their nature are largely held to one particular form of transport. The latter would presumably include coal and coke, iron and steel, iron ore and limestone. We venture to doubt whether heavy materials are now so largely tied to the railways as in 1939 when the Transport Advisory Council held its inquiry. General assertions on a question of that kind cannot be accepted; precise statistics are necessary to show the true position. Since 1928 road hauliers have made inroads on traffics which seemed much more suitable for carriage by rail than on the public highway. The tonnage of coal, steel and other heavy commodities carried coastwise may increase in future, and unless steps are taken to arrest the pre-war decline in coal exports the railways will lose a large proportion of shipment coal. Pipelines, installed for war reasons, are likely to remain as permanent competitors for the distribution of oils. The competitive field, therefore, seems certain to grow wider after the war and any general transport policy should in our view be framed on that basis.

The second article considers three proposed solutions of the problem through the medium respectively of

- (i) price competition on the basis of equality of opportunity;
- (ii) joint price-fixing and a sharing of traffic between the financially independent means of transport, with "competition in service"; and
- (iii) a community of interest between the various facilities, created under the auspices and supervision of the Government.

The Economist rejects the first and second schemes. It considers that they "might, in spite of good intentions and safeguards, impose upon this country a regime of high costs to which the consumer of transport would take the strongest exception."

The third article examines the merits of the remaining solution of the problem. We are told that "the creation of a real community of interest can take the form of the financial integration of the capital of all means of public transport or of an arrangement for the pooling of receipts without interference with existing ownership." If capital were pooled, there would only be a short step to outright nationalisation, but as an alternative it is suggested that a special board might be set up to combine private ownership with public management. *The Economist*, however, would prefer some form of arrangement for the pooling of receipts, as that would interfere least with the financial existence of the existing undertakings. The only suggestion put forward as to the structure of this colossal pool is that the scheme set up under the London Passenger Transport Act might serve as an example, but there is no comparison between the straightforward process of pooling receipts from London passenger suburban traffic between five parties with clearly defined interests and the accumulation in one fund of the earnings of all

transport agencies from every description of service which they perform. If a pooling arrangement were established, *The Economist* would then appoint a central transport committee of the Ministry of Transport to control

- (a) capital expenditure;
- (b) the interworking of all forms of transport;
- (c) the allocation of traffic through regional traffic commissions;
- (d) the fixing of charges on the basis of comparative costs and their publication through the regional organisation.

As a safeguard for users of transport, central and local tribunals would be set up to hear complaints.

These proposals mean that a body of civil servants would have complete control over the day-to-day management of transport as well as over its future development. Subject to strategic and other special considerations it "would be guided continuously by the aim of achieving the lowest total costs." Traders would be deprived of the choice of means of public transport and of the advantage of "cut" rates for special traffics. Passengers might also lose the privilege of choosing their own route and might find many facilities withdrawn in the effort to diminish the total cost of carrying the people of this country. Traders and passengers are apparently expected to put up with the loss of their rights because they would benefit from the overall increase in productivity. The one person to retain his privileges is the holder of the "C" licence for carrying his own goods, though obviously a large increase in "C" licences would jeopardise any freight rates structure for rail, road and water conveyance. The writer of the article sees this danger, but relies on the efficiency of public transport to keep down the demand for "C" licences, which was growing rapidly before the war.

We cannot see any prospect of a scheme such as *The Economist* has outlined being accepted by the transport undertakings, or the trading community, or the travelling public. All these interests would rebel against the perpetual interference of a government department with their liberty of action. Transport agencies would cease to be enterprising if they could no longer go in search of fresh business or strike out in fresh directions. They cannot hope to escape close regulation of their operations and rail, road and canal charges should be subject to the same degree of control, but otherwise the carriers should be left free, as far as possible, to work for the largest net revenue they can earn. They are wise enough to know that the best way of looking after their own profits is to supply convenient facilities at reasonable prices. The natural exercise of enlightened self-interest on their part is almost bound to give the country transport cheap enough to encourage travel and to assist the expansion of trade and industry.

Before one form of transport incurs substantial expenditure on new works or equipment, ordinary commercial prudence prompts it to consider the impact of rival methods of carriage on the case for providing additional facilities. The general tendency is for transport undertakings to be conservative in spending money on experiments and we believe that frequently their excessive caution has not been in the public interest. We are afraid that progress would come to a standstill if the undertakings had to show that each of their schemes of improvement would reduce the total real cost of transport—a purely notional and incalculable figure, when all is said and done. So our final conclusion is that *The Economist's* articles are valuable for the critical analysis which they contain, but fail to take us any nearer to a workable solution of the transport problems which will have to be settled at the end of the war.

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Buenos Aires Transport Corporation

THE Buenos Aires Transport Corporation, which came into existence not long before the outbreak of war, has experienced considerable difficulty in overcoming the disabilities under which the constituent companies laboured before the Corporation took over from them the responsibility of providing the 3,000,000 inhabitants of the Argentine capital with the intensified services of underground railways, buses, and trams which make up the city transport services. The principal obstacle was the recalcitrant attitude of numerous proprietors of collective-taxis and micro-buses, who declined to transfer their assets to the Corporation in return for an agreed number of shares in the new undertaking. They insisted on payment in cash, which the Corporation was unable to raise on the strength of its own credit. Eventually, the money was found by issuing debentures carrying a Government guarantee, which, however, was given only on condition that, in the event of default, the Government had the right to take over control of the concern. This contingency has arisen.

The Corporation, having been refused permission to raise its fares, has been unable to meet its commitments on the Govern-

ment-guaranteed debentures and it is reported that the State has superseded the board of directors, composed of Government and municipal nominees and representatives of the former operating companies. By far the largest shareholder is the Anglo-Argentine Tramway Company, a joint-stock enterprise registered in England. For practical purposes, therefore, the Buenos Aires Transport Corporation may be regarded as a State undertaking, though it remains to be determined what treatment is to be meted out to the shareholders. The prospects of the private investor seem as unpromising as they were when the undertaking was under joint-stock management and, from the viewpoint of the user of the services, the outlook is far from reassuring. For many years before the war, both tracks and equipment steadily deteriorated because the Municipal authorities were unwilling to allow sufficient fares to be charged to enable proper services to be operated. The war, however, has created conditions under which it is no longer possible to provide adequate services, even if increased fares were authorised.

Almost the whole of the rolling stock and equipment for city transport services in Argentina must be imported, as the country is practically devoid of heavy industries of the types which can turn out steel rails and rolling stock for underground railways and trams, power plant, and buses. Furthermore, the world shortage of rubber and the fact that such supplies as are available are under the control of other countries, renders it impracticable to maintain the required number of buses, micro-omnibuses, and collective-taxis in service. About 70 per cent. of the entire Buenos Aires road fleet has been out of commission for some time through lack of tyres and spare parts and there is little prospect of returning the vehicles to service until supplies can be imported from overseas. Years of sub-normal maintenance and renewals have brought the inevitable result. The position of the trams is rather less critical. The State Railways and naval workshops have rendered valuable aid by producing steel tyres and axles from such local stocks of metal, including scrap, as were available, which has enabled superannuated trams to be rebuilt and brought back into service. There are some 300 more cars running than a year ago.

Evidence is not wanting that the management and technical staffs continue to do their best in the face of exceedingly trying conditions. Recent reports tell of modifications to the bodywork of trams in order to increase the capacity. One scheme provides for changes in the front platforms, which are expected to increase the accommodation by the equivalent of 300 collective-taxis. Another plan proposes the removal of the centre seats of the car to free space which could be used to greater advantage by standing passengers. Experiments are also in progress to determine the practicability of fitting steel flanged wheels to collective taxis, for which rubber tyres are no longer available. The intention is to run the hybrids on the tram lines from terminal stations and other congested points.

It has been announced also that the practice is to be discontinued of exhibiting the "Completo" sign on the front of a tram when it is already carrying its complement of passengers, including a number standing. From time to time, the Municipal regulations governing the permitted number of standing passengers have been varied, though, generally, the authorities have been strict, in the interests of public safety. In addition to crowding the cars without restriction, policemen and postmen are now allowed to travel on the front platform with the driver, hitherto a banned area. Apparently the only limitation applicable to the number of passengers on trams is the rule that "steps and projecting parts of vehicles shall be kept free." A spokesman for the Traffic Control Committee is reported to have stated euphemistically that it is hoped that the public will not adopt "suicidal attitudes" and that both passengers and conductors will behave in a becoming manner. It is hardly surprising that misgivings should arise under conditions which condone exceedingly uncomfortable travel and the risk of personal injury, perhaps, indeed, loss of life. Similar relaxations have been applied to other road services. Collective-taxis with seating capacity for 11 persons are permitted to carry up to eight passengers standing and micro-buses with seats for 15 or 16 may carry up to 11 extra passengers. Motorcoaches normally for holiday traffic have been assigned to fixed routes for the conveyance of school-girls only and hours of Government offices are to be staggered. Work in some departments commences at mid-day, instead of the usual 9 a.m. or earlier.

It is difficult to believe that the authorities, who were reluctant to allow the investor in public utility enterprise to receive even a modest return for the use of his savings, ever foresaw the boomerang effect of their policy. The travelling public in Buenos Aires now has to face not only great personal inconvenience, but jeopardy of life and limb, and must anxiously enquire whether, after all, it is not they, rather than the much-stigmatised capitalists, who are the real victims. It is true that the investor has suffered loss which he could ill afford, but, on the other hand, 3,000,000 citizens who more than ever before depend on the public transport services to enable them to go about their lawful occasions doubtless would gladly pay higher fares to be relieved of the

personal risks and costly delays which are now their inevitable lot. Be that as it may, the fact remains that there is little hope of putting right errors of policy in the treatment of public utility undertakings until the war is over and industrial nations are able to resume exports of railway, tram, and bus equipment, of which Argentina stands in such urgent need.

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Railway Sleeper Position in the U.S.A.

CONCERN is being felt by railways in various parts of the world as to what the position is likely to be in regard to the supply of timber sleepers after the war. In the United States, which is estimated to have about 994,000,000 sleepers in railway tracks, and which requires approximately 50,000,000 sleepers for replacements, 4,000,000 to 5,000,000 for new lines and sidings, and up to 185,000,000 cu. ft. of timber for switches, crossings, bridges, etc., notwithstanding the large available timber resources of the country, the question of future sleeper supply is engaging close attention. It was discussed in all its bearings at the 26th annual meeting of the Railway Tie Association, held in Cincinnati during May, and attended by 125 representatives of railway engineering and purchasing departments, and of the sleeper producers.

As representing railway engineers, Mr. J. B. Akers, Assistant Chief Engineer of the Southern Railway, said that wear accounts for the removal from the track of 60 to 90 per cent. of the sleepers, which are cut into by rails and soleplates, spike-killed, crushed for lack of adequate strength, and damaged by rough track, badly maintained joints, and in other ways. Much of the mechanical wear is due to the flat-bottom rails in use being too light for the work they have to do; but heavier loads and higher speed are now compelling the use of heavier rail sections, up to 131 lb. per yd. on main lines, and even 152 lb. per yd. on routes of exceptional traffic density. These rails are associated with more substantial joints and joint fastenings, and with better track fixtures generally, and such conditions should result in a considerable lessening of sleeper wear.

Similarly, the great increase of speeds has resulted in more attention being paid to depth of ballast, drainage, curing of soft spots, and stabilisation of the track generally, all of which is to the advantage of the sleepers. Much thought has been given to soleplate design, in order to ensure, if possible, that the maximum loading shall pass through the centre of the soleplate and that the latter shall not cut into the sleeper more at one end than the other; an assistance in this direction has been to make the outer shoulder, against which the railfoot bears, $\frac{1}{2}$ in. wider than the inner shoulder.

As to the sleepers themselves, while the speaker admitted that the quality of timber and treatment is, in general, good, there are defects which need to be remedied. In particular, oak sleepers suffer too much from splitting; and though many anti-splitting irons are used, they cannot be relied on to give efficient service for long. Research is needed into the causes and splitting and checking, in order to promote timber conservation. It is said that a new treatment has been devised which, in effect, changes softwood to hardwood, and results in a structure of metallic hardness which does not swell, shrink, or warp, which is fire-resistant, and which surpasses natural wood in its durability and resistance to decay. Such a treatment applied to the upper surface of sleepers in the areas on which the soleplates take their bearing, might greatly prolong sleeper life.

Three railway officers who are concerned with purchasing then spoke—Mr. A. C. Mann, Vice-President, Purchases & Stores, Illinois Central System; Mr. D. C. Curtis, Chief Purchasing Officer, Chicago, Milwaukee, St. Paul & Pacific Railroad; and Mr. M. E. Towner, General Purchasing Agent, Western Maryland Railroad. They pointed out that whereas in 1925, 83,000,000 sleepers were purchased for renewal purposes, in the depression years the average fell to about 37,000,000 annually, but that the intensive war traffic of 1943 had brought the total up again to 46,000,000. If the rate of sleeper consumption be proportioned to the tonnage of traffic moving, the figure shows a steady decline; whereas from 1921 to 1929 sleeper renewals averaged 45.83 per million gross ton-miles of traffic, by 1939 the figure had diminished to 34.66, and 1943 to 20.71. But this reduction has been largely due to shortage of supplies, and it is estimated that for efficient track maintenance, the normal renewal demand should average 30 sleepers annually per million gross ton-miles. This being so, the railways of the United States would require at least 42,000,000 sleepers annually for renewal purposes, with an increase to 48,000,000 for five years while wartime arrears of maintenance are being overtaken.

It is by no means certain, however, that such quantities will be available of the quality on which the railways insist; and the prospects in five or ten years time cause even more concern

than the immediate future. One speaker regarded the standard of sawn timber in the United States as having been materially lowered in the period from 1910 to 1940. Depletion of basic growing stocks has not been checked on more than a fraction of the privately-owned forest areas, and although the United States possesses enough forest land to produce timber to meet all predictable needs, if the forests are not properly managed, these needs are not likely to be met unless the present rate of growth is doubled. As in the first world war, during the present war there has been a serious amount of forest depletion and timber waste, not a little of it due to the demand for wood pulp for the production of paper, in view of the cutting off of overseas supplies. Proper attention to afforestation will benefit the future, but will not meet immediate needs, and these call for the closest study of timber cutting methods to reduce waste, as well as improvements in seasoning paper storage arrangements and piling, and separation according to types of wood and grades. Improvements in preservative treatment are increasing sleeper life from 20 to 25, 30 and even 35 years.

Another unpredictable factor is the effect that price may have on consumption. When the American Government first fixed wartime sleeper prices, it did so at too low a level, with the result that production practically stopped. Since then prices have been allowed to take their own course, and whereas on January 1, 1940, a No. 3 oak sleeper could be bought for 85 cents, by May, 1944, the price was \$1.35; but a representative of the producers claimed that even at this figure the margin of profit had practically vanished. Mr. Curtis, of the Milwaukee, remarked that although it has not yet been determined to how high a level the price of timber sleepers can go before their confirmed use becomes definitely uneconomic, if the cost continued to climb at the same rate, a substitute for timber would have to be found. A certain amount of experimenting has been done in the United States with concrete as a sleeper material, but little, singularly enough, with steel; the present timber position is likely to stimulate further research in both directions.

....

Waste Paper and Industrial Records

A REMINDER that the war, although progressing very favourably for the Allies, is by no means over is provided by the revival of waste-paper salvage drives in various parts of the country. Any general increase in the amount of paper available, for all the many purposes for which paper is now used, can be brought about only by a restoration of imports either of paper or of paper-making materials, and this requires shipping space, which is not likely to be obtainable until the war in the Pacific has been brought to a satisfactory conclusion. Thus arises the continuing need for periodical salvage drives to collect as much waste paper as possible and so to reduce paper imports to the minimum. In the near future, an intensive paper-salvage campaign is to be opened in Lancashire and Yorkshire, where special collections are to be made in Liverpool, Manchester, Salford, St. Helens, Oldham, Bolton, Preston, Sheffield, York, Middlesbrough, Leeds, Bradford, and Hull. There is no doubt that the spirit of competition will be invoked to swell to the maximum the amounts of paper collected, but in this there is a renewed danger to various classes of industrial documents which can certainly be spared in the sense that their retention is no longer necessary to the conduct of present operations, but which have acquired a new value, not always realised by their owners, as the raw material for the historian and the economist.

The selection, from among the great mass of industrial accounts and other records, of those worth preservation is a province of the Council for Preservation of Business Archives. The work of this organisation has been virtually suspended during the war, through stress of circumstances. Thus the dual responsibility of ensuring that no valuable material is mistakenly destroyed, while supporting the salvage efforts by preventing the needless accumulation of papers of no historical or economic value, has devolved upon the Records Preservation Section of the British Records Association, which issued a useful memorandum entitled "Modern Records—What May We Destroy?" to which we have referred previously. Much has been done already by the association to acquaint local libraries, Chambers of Commerce, etc., with the classes of records which it is desired to protect, and they do not constitute a large proportion of the total, in terms of the weight of paper likely to be withheld from salvage. The association is desirous, therefore, that any individuals or firms, especially those firms of long standing, who may be contemplating the disposal of their records as waste paper, should first communicate with the Honorary Secretary of the Records Preservation Section at 8, New Square, Lincoln's Inn, London, W.C.2, so that arrangements may be made to examine documents, the value of which may be in doubt.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Railway Electrification Pros and Cons

Thaxted, Essex
September 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I clear the air by stating once again that I am not competent to express an opinion as to the advisability of electrifying our railways. I ventured to comment upon "East Anglian's" letter, only because I regarded as somewhat misleading the comparison he drew between multiple-unit electrified vehicles working for the most part in an intensified suburban service, and steam locomotives engaged for the most part upon the haulage of freight traffic.

In your issue of September 15, Mr. George Key asks me: "Where is the line of demarkation in mileage defining suburban traffic and main-line traffic?" The answer is, of course, that, from the point of view of a railway company, there is not such a line of demarkation. When I speak of an intensified suburban service, I mean a service catering for men and women who live in one area and travel regularly to work in another. Traffic of this nature calls for the intensified service we associate with suburban timetables. It is in this connection that electrification is advantageous because it provides the intensified service with a minimum of trouble, and by attracting new residents to the town, or towns, concerned gradually effects an increase in the number of passengers carried daily by the railway. In my opinion the London-Brighton service is, in essence, an intensified suburban service, Brighton for the purpose being a suburb of London. In "The Future of the Railways" (Simpkin Marshall), published in 1928, I referred to "Margate, Herne Bay, Hastings, and similar places" as so many potential "suburbs of London." The words I quote were those I used. I mention this merely to show that I shared Mr. Key's views on this question possibly before he formulated them in print.

Where, on the other hand, the passenger traffic is fortuitous—for instance between Euston and Crewe—electrification is far less likely to influence the number of persons travelling, and for that reason would pay for itself only insofar as it effected a very substantial economy in operating costs.

Possibly the issue will eventually be decided by the expense of maintaining two forms of energy side by side. When electrification is sufficiently prevalent in a sufficient number of localities, presumably it will prove uneconomic to link those localities with steam. But for the moment the issues raised by suburban and main-line electrification are not the same. Stated in general terms, the question in one case is: How much more shall we earn? and in the other: How much less shall we spend? It does not follow that an answer favourable to electrification in one case necessarily implies a favourable answer in the other.

However, we live in very uncertain times, and it is, I suppose, within the realms of possibility that an enthusiastic Government may one day electrify the entire British railway system by way of providing that new Heaven on earth for which we are so constantly invited to pay, but which, I fear, we are destined never to see.

I am,
Yours very truly,
ASHLEY BROWN

Wartime Railway Services

62, Southway, N.W.11
September 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—No one these days travels by train without good reason, but many people are still forced to do so for business reasons, in addition to the many members of the Services. Why, therefore, do the railway companies not examine their consciences and learn to consider the public health? It is no unusual thing for a train scheduled to do a journey in 9 hours (actually taking longer very often) to carry no water. The queues at one large city at least are a public scandal. It cannot be necessary for people of all ages and in all states of health to stand in all weathers in the open street for two hours before being admitted to the platform. The foot and vehicular traffic of the whole city is disorganised in addition to the danger to the public health.

Since no one would stay in a railway hotel except of dire necessity it should be obvious to the management that the majority of visitors have to catch trains, yet the hotels continue to keep those visitors in a queue for upwards of half an hour for breakfast, service in the restaurant often necessitating a further wait of an hour. As the charge for a night's stay is inclusive of breakfast, the hotels presumably make a handsome profit from the unfortunate travellers who cannot spare the time to wait for

breakfast and therefore have to pay a further sum and make do with a cup of tea or coffee served in the lounge. The difficulty is doubtless one of labour shortage, but if this is so, why can charge not be made for bed only, or some rebate be allowed where it has not been possible to obtain breakfast?

The absence of dining cars has made it necessary for travellers to carry food, and the railway hotels are good enough to provide them with sandwiches—at a price. A loaf costs fivepence and yields at a conservative estimate twenty slices; a pot of paste to spread on all that bread costs less than a shilling, yet the hotels have the audacity to charge one shilling and sixpence for two thin slices of bread stuck together with a little of that paste—is it not time that the price regulation committee took some action?

Yours faithfully,
H. W. TAYLOR

[The disabilities referred to by our correspondent are the outcome of wartime conditions. Although travel conditions are admittedly bad in Great Britain, they probably compare very favourably with those in any European country at the present time.—ED. R.G.]

Mr. F. A. Jamieson

6, Addison Gardens,
W.14. September 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It was with great regret that I learned of the death, which was recorded in your issue of September 8, of Mr. Frederick Alexander Jamieson, lately Locomotive & Works Superintendent, Peiping-Liaoning Railway (Peking-Mukden Line), Chinese National Railways. My memory of him covers a period of many years dating from 1898, when our respective railway duties brought us into daily contact; and I was, therefore, able to appreciate his many sterling qualities and the important part he played in the advancement of railways in China. He was a man of outstanding ability, remarkably farseeing, and quick in decision; a better and more competent railway official it would have been hard to find, and his valuable services and devotion to duty over a period of forty-five years earned the high appreciation of the Chinese Ministry of Railways. He will be remembered especially, perhaps, for his unassuming manner, easiness of approach and kindly disposition.

It is not possible in a few words to venture a detailed description of Mr. Jamieson's many achievements. China was the home of his birth, in 1868, but he came to England at an early age. After completing his railway apprenticeship he returned to China to fill an appointment with the Shanghai Dock & Engineering Co. Ltd. His keenness for the sea lured him to enter the Mercantile Marine Service, and, in record time, he secured his Board of Trade chief and extra chief's certificates. In 1898 he entered the service of the Imperial Chinese Railways, and soon afterwards was appointed Locomotive & Works Superintendent at Tongshan.

There he was chiefly responsible for the development of the large railway works, which served the urgent need for training Chinese mechanical engineers, an innovation conceived and promoted by the late Mr. C. W. Kinder, C.M.G., then General Manager & Engineer-in-Chief. His works were capable of constructing and maintaining locomotives and rolling stock of all types required for both the home lines and other lines in course of construction. All this important work was undertaken with the minimum amount of imported pre-fabricated parts; thus, boilers for the largest locomotives of the 2-8-2 and 4-6-2 types, weighing up to 130 tons with tenders, were built. Wheels, axles, springs and couplers were imported; other parts were made from material imported in the rough.

Mr. Jamieson's numerous friends will be sorry to hear of his death, which occurred so soon after he had severed his active connection with the railway for health reasons. His share in laying the foundation of China's railway system will long be remembered by all, but particularly by those who had the privilege of working under his direction.

In addition to being an Associate Member of the Institution of Civil Engineers, Mr. Jamieson was a Gold Medallist of the City & Guilds of London Institute.

Yours faithfully,
F. A. H.

PAPER FOR MAPS.—For the recent airborne operation in Holland of the First Airborne Army 24 tons of maps were used; every soldier who landed had a map of the area in which he was to operate. This example of the considerable weight of paper which often may be needed even for such comparatively small (but essential) items as maps should prove an added incentive to all for a maximum effort in the salvaging of paper, an effort which, incidentally, will not be able to be relaxed with the close of hostilities.

The Scrap Heap

Wartime travel is the most uncomfortable distance between two points.—*From a U.S.A. journal.*

When 106 awards were made recently by the Soviet Authorities to members of the British Fighting Forces and Merchant Navy, principally for services in delivering armaments from Great Britain to Russia, every recipient of a medal was given, also, a book of vouchers permitting the holder to travel free on all railway, bus, and tram routes in Russia.

A weary American season ticket holder (commuter) wired his boss: "Will not be at office today. Am not home yesterday yet."

Two years after the Germans occupied Belgium they found a new means of punishing the recalcitrant Belgian—they took his bicycle. In 1940 there were 3,000,000 bicycles in the country. Today there are only about 1,000,000. Instead of fining cities in money for acts of sabotage, the Germans fined them in bicycles. Brussels was fined 5,000 bicycles once and Liège 300.

For centuries the position of Arab women in North Africa has been lowly. When travelling the man rode the family donkey while the woman, carrying the household goods, walked behind. But with the coming of war and the British and American troops many customs changed. The man still rode the donkey but the woman was emancipated. She walked in front. There might be land mines!—*From a U.S. Army Officer.*

BY ANY OTHER NAME

The names *Springbok, Eland, Impala, Gazelle, Oryx, Bongo, Blackbuck, Klipspringer, Kudu, and Hartebeest* have been given to the latest L.N.E.R. mixed-traffic engines, the "B1" class 4-6-0s, of which the first ten have now been completed at Darlington Works. These names are those of various species of antelopes—all but one African—and were chosen in commemoration of the visit of General Smuts to this country when the first of the class was under construction.

RESTORED AND IMPROVED LINES WILL AWAIT YOU SOON

Miss M. Townsend on the staff of Mr. George Orton, British Railways Parliamentary Liaison Officer, has prepared the above advertising suggestion for use before the railways are ready to return to normal working.

NORTH BRITISH ENGINES

The following letter to the Editor appeared in the *Scotsman* for July 31, over the initials J.R.M.:

"Sir,—A recent note in 'Men and Affairs' mentioned the 'bronze-green' engines of the late (in more senses than one!) North British Railway. This is an excellent term to describe the dark green, tinged with brown, which may still be seen on the fine model which adorns the booking hall at Waverley Station, representing No. 874 *Auld Reekie*, one of the famous Reid Atlantics, now, alas! no more.

"It is interesting and remarkable, however, that out of the dozens of coloured pic-

tures, postcards, etc., which I have seen purporting to depict N.B.R. trains or engines, only one had the 'bronze-green' even approximately right: a plate in *The Railway Magazine* for May, 1912. All the others—even those by the well-known and otherwise impeccable railway artist F. Moore—were dark brown with (or without) a tinge of green, instead of *vice versa*. Far otherwise with the splendid blue of the former Caledonian engines, only one of which now remains—the famous racing 'single' No. 123, preserved at St. Rollox works, Glasgow, though its destined and rightful resting-place was Princes Street Station, the scene of its triumphs. But ought not also one of the Holmes 'Greyhounds' of the N.B.R. to be preserved in its original colours?"

WHEN IS A TRAIN STOPPED?

Dr. C. E. M. Joad put a question—as a change from answering them—to the *Daily Express* Touring Brains Trust in Cardiff recently, when he asked: "When is a train stopped?" He was 40 minutes late for the Trust meeting. He had missed a train, and, as he was boarding an express at a small station, the guard had told him: "You can't get in. This train doesn't stop here."—*From the "Daily Express."*

I was given the job of laying out a new railhead at Quesaba and soon had various branch lines meandering out into the desert for the dispersal of supplies. That Quesaba job was a headache. There was no new railway material available and every railway scrap-heap in Egypt had to be combed for rails and sleepers. Some of the rusty twisted metal was dated as far back as 1870. About the time Kitchener fought the battle of Omdurman those rails had been torn up and thrown on the scrap-heap as worn out. Now, nearly fifty years later, it was resurrected and put to use in our dire emergency. Somehow or other I got the tracks laid and trains ran over them, damned slowly, but still they ran.—*From "Pipeline to Battle," by Peter W. Rainier.*

LAST WEEK'S PROBLEM

Mr. E. G. Garstang's solution to the problem he put forward in our last week's issue is as follows:—

He proceeds along the dotted line "G-H" to the old lady's cottage, places her in her bath chair, wheels her to the position "D" and says, "Sit there Granny for three minutes, and you will see the finest ruddy train smash you have ever seen in all your life."

TAILPIECE

(Cats are now on the L.N.E.R. payroll)

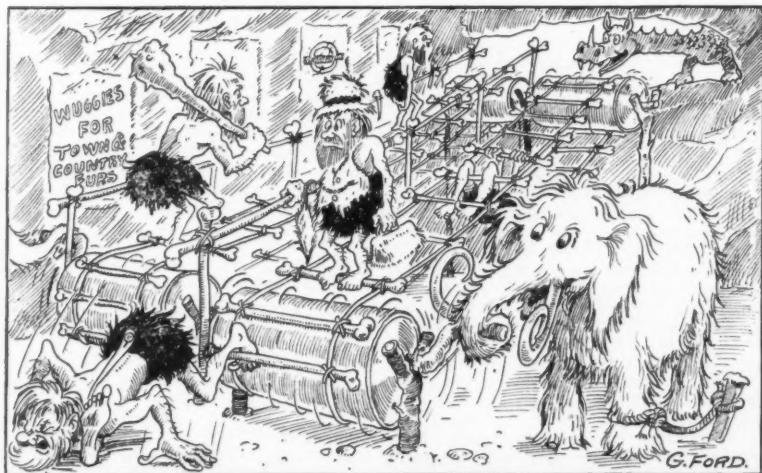
Now cats are on the payroll,
And fed with dried-milk rations,
For keeping down the vermin pests
That prey about the stations.

Where grain and other foodstuffs
Are stored in rich profusion,
The feline species plays its part
With skill and keen collusion.

Though Tibby's wartime status
Is one of variation,
The railway cats have earned their place
By good work for the nation.

So when nocturnal noises
Disturb your sleep's sweet session,
Remember Tom is on the prowl,
And Tibby's his obsession.

W. E. N.



Peeps into the past—a prehistoric escalator

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

"Streamline" Station of the Future

Mr. J. F. Pringle, Vice-President & General Manager, Central Region, Canadian National Railways, announced recently that application had been made to the Board of Transport Commissioners for permission to construct immediately, at Midland, Ontario, a "streamline" station of a type designed by the C.N.R., to replace the former wooden structure destroyed by fire. The plans were submitted to a joint meeting of the Midland Town Council and Chamber of Commerce, which reported that the members were impressed by the design for the new station. The use of field stone in the decorative scheme will provide a direct link with the founding of the nation, and it is a coincidence that the first station of the new type should be intended to be erected at Midland; for the use of field stone will provide a connection with the earliest and most tragic days of the Georgian Bay district, when old Fort Ste. Marie, the residence of the Jesuit Fathers, martyrs of the Huron Indians, stood less than three miles from the site of the C.N.R. station; field stone was the basis of the construction of the fort. The design for the "streamline" station has been executed by Mr. J. Schofield, Chief Architect, C.N.R.

UNITED STATES

Diesel Locomotive Orders

The first railway in the United States to take steps for the complete elimination of steam power is the New York, Ontario & Western Railway, a line in New York State which is occupied mainly in the haulage of coal and miscellaneous freight. At an estimated cost of \$6,700,000, it has ordered 37 diesel-electric locomotives of various sizes from the Electro-Motive Division of the General Motors Corporation to effect this change-over.

The Boston & Maine Railroad has increased by six its order for 12 diesel-electric locomotives, of 5,400 b.h.p. each, originally placed (six at a time) with the Electro-Motive Division of the General Motors Corporation in March 1942, and March, 1943. Of the total ordered, four are now in service; and eight are scheduled for delivery in 1944, and the remaining six for 1945.

Automatic Signalling

An extensive order has been placed with the Union Switch & Signal Company for automatic block signalling by the Central of Georgia Railway. It provides, throughout the 119 miles of single-track main line between Columbus, Georgia, and Birmingham, Alabama, searchlight signals and all equipment. Installation will be by the railway company.

Aluminium Alloy Wagons

An experiment in the reduction of the tare weight of goods rolling stock is being made by the Missouri Pacific Railroad, which has ordered from the American Car & Foundry Company 25 bogie hopper wagons, each of 70 tons capacity (62½ tons of 2,240 lb.) with bodies built entirely of aluminium alloy. Only the centre sills and bolsters will be of steel. Although these wagons will be 3 ft. 3 in. longer than conventional all-steel 70-ton wagons, and will have their capacity thus increased by 240 cu. ft., their tare weight will be only 16 tons 11 cwt., compared with the 22 tons

7 cwt. of the all-steel type. To give equal strength, the aluminium-alloy wagon sides will be thicker than the steel sheets normally used.

An Abandonment Forbidden

The Interstate Commerce Commission has been recommended by its examiner to deny the application of the Minneapolis, St. Paul & Sault Ste. Marie Railway and its subsidiary, the Wisconsin Central Railroad, to abandon 69 miles of line between Stevens Point and Portage, Wisconsin, with an 8-mile branch to Montello, even though those lines are being operated at a loss; but such denial should be without prejudice to the renewal of the application at the end of 1945. Meantime, the difficulty of two large bridges needing renewal in the 4-mile section between Plover and Stevens could be obviated, it is stated, by the granting to the applicants of running powers over the adjacent Green Bay & Western Railroad between those points.

Closing a Main Line

An unusual application has been made by the Boston & Maine Railroad to the Interstate Commerce Commission, for authority to abandon a main line. The company owns two main lines between North Berwick and Biddeford, Maine, and has found that with modern methods and equipment it can handle all its traffic over the southerly of the two routes, which is better laid out for the purpose than the other. It is seeking permission, therefore, to abandon the latter, which is all but 18 miles long.

URUGUAY

Pan-American Railway Congress

Considerable activity is being displayed by the executive committee of the Pan-American Railway Congress, scheduled to take place in Montevideo next year. North, Central and South American countries and railways are taking an active interest, and many communications already have reached the Chairman, Sir Guillermo Leguizamon, and the General Secretary, Señor Joaquín Nuñez Brian. Several railways and organisations of Bolivia, Uruguay, Mexico, Venezuela, Chile, Canada and the U.S.A. (in particular, the Association of American Railroads) have sent in valuable information in connection with the subjects to be examined at the Congress.

History of the Congress

In 1906 Señor Santiago Brian obtained the approval of the then Argentine Minister of Public Works for a railway exhibition to be held and a South American railway congress convoked. The Minister issued a Decree which fixed August 30, 1907, as the date for the opening of the Railway Exhibition (considered as the forerunner of the National Exhibition planned for the 100th anniversary of Argentine Independence in 1910), of which the Railway Congress was considered the continuation. Another Decree organised the Argentine entity as a permanent institution, and established that the first session should be held in Buenos Aires in 1910. It was stipulated that the Argentine Ministry of Foreign Affairs should invite the South American nations and their railway administrations to participate.

At the first Railway Congress, an international permanent entity was organised, to contribute to the progress of railways by the study and discussion of problems arising from the operation of the respective

systems and international connections. This permanent association has the following principles: (a) the holding of meetings of its members in congresses, if possible at intervals not to exceed five years; (b) the publication of reports and documents, and of a periodical *Bulletin*; and (c) the establishment of central services for the supply of information, propaganda and reports concerning railways. It is formed by governments and railway companies which contribute to its support, and by public and private institutions and persons interested in its objects, and is governed by an International Permanent Commission (elected at each Congress), the seat of which is in Buenos Aires, where it meets periodically, and from whose membership the authorities of the executive committee are elected. In each adherent country there is a Permanent International Commission, composed of eight members, chosen from among high government officials, members of executive railway boards and other prominent citizens, who, in turn, are the natural intermediaries between the International Permanent Commission or the executive committee and the governments, companies and other adherents in each country.

Previous Congresses

The first South American Railway Congress was held in Buenos Aires in 1910, and was attended by 129 delegates, representing seven countries and 25 railways. The second Congress met at Rio de Janeiro in 1922; there were 92 delegates, from 11 countries and 22 railways. The third was held in Santiago de Chile in 1929; it was attended by 125 delegates, and 11 nations and 25 railways were represented. The fourth should have been held at Lima, but, as that was not possible for various reasons, it met at Bogotá in 1941; it was attended by 75 delegates from all the South American countries and numerous railways. One of the most important decisions taken at the 1941 meeting was to convert the Congress into a Pan-American one.

HUNGARY

State Railways Budget

In accordance with the usual practice, the budget of the Hungarian State Railways for 1944-45 consists of two parts, relating to the State Railways proper (MAV), and to the road motor services operated by MAVAUT (a subsidiary undertaking of the State Railways). From the budget of the State Railways proper it appears that their route length is 7,922 miles, or about 27 miles less than in 1943; this is explained by the discontinuation of public traffic on certain sections. Working receipts for 1944-45 are expected to be considerably higher than for 1943-44, mainly due to the increases in rates and fares which took place in the latter year. The following table shows some of the main figures of the 1944-45 budget, compared with that of 1943-44:—

	1944-45	1943-44
	pengő	pengő
Working receipts	1,073,380,000	730,630,000
Working expenditure	699,016,000	500,387,000
Working surplus	374,364,000	230,243,000
*Pensions	159,536,000	118,829,000
Surplus	214,828,000	111,414,000
Investments	273,270,000	180,000,000

* Inclusive of pensions relating to the personnel of the road motor services.

Road motor services are operated over about 3,050 miles; and the combined mileage travelled by passenger and goods vehicles during 1944-45 is expected to amount to some 17,683,500, against about 32,677,000 shown in the 1943-44 budget.

112-LB. RE. DIMENSIONS

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A New Flat-Bottom Rail Section

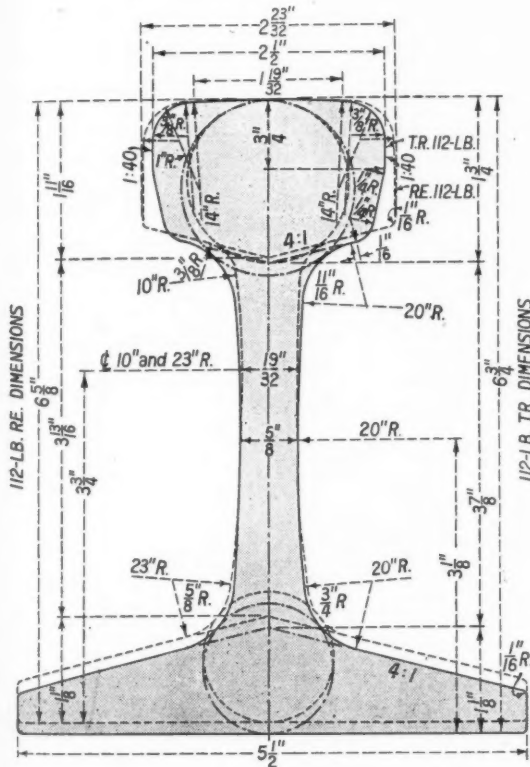
In the U.S.A., the Burlington line has evolved a new 112-lb. "torsion-resisting" rail section to reduce failures under peak stresses

FOR some time there has been concern on the U.S.A. railways at the increasing number of rail fractures, not only by reason of transverse fissures, but also from eccentric loading and other causes of fatigue failure. The Chicago, Burlington & Quincy Railroad is now laying 5,000 tons of 112-lb. per yd. rail of a new design, which has been evolved in an attempt to deal with this situation. The new section differs considerably from

of 14 in. on the running surface, is $\frac{7}{8}$ in. narrower than that of the standard rail ($2\frac{1}{2}$ in. as compared with $2\frac{3}{4}$ in.); at the outer corners the radius is increased from $\frac{3}{8}$ in. to 1 in. The two sides are vertical to a point $\frac{1}{4}$ in. below the crown of the rail, and then taper inwards until they reach the fishing, which, instead of being at an angle with short radii at the corners, is an arc of a circle of $\frac{1}{4}$ -in. radius, merging into the 20-in. radius of the web-

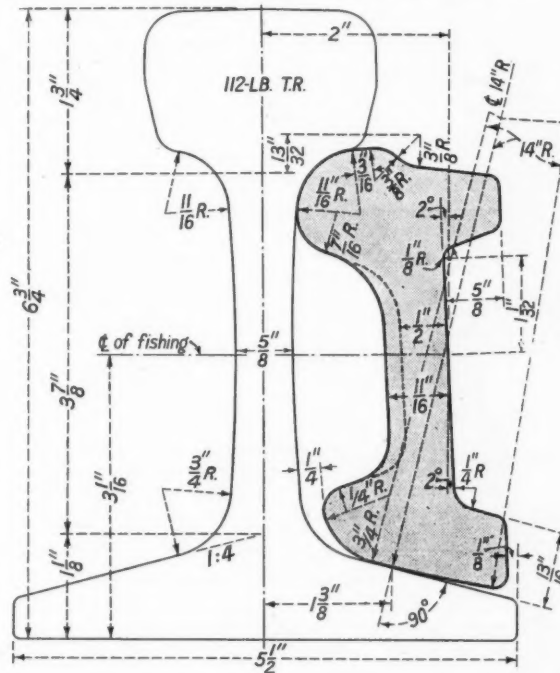
tration of stress in the web and web fillets will be reduced by at least 20 per cent. The steel manufacturers advise that the T.R. section is easy to roll, and that the head profile makes it less susceptible in cooling to shatter-cracking than the A.R.E.A. section. A new 128-lb. per yd. T.R. section has also been designed on the same lines, and this, it is claimed, has the same moment of inertia as the existing 131-lb. A.R.E.A. section, and will give a 40 per cent. reduction in web stresses notwithstanding the fact that it is 3 lb. per yd. lighter in weight.

To accompany the 112-lb. T.R. section, the Rail Joint Company has designed a new type of fishplate (Type "112KM8"), similar in profile to the standard headfree toeless type of plate in



Left: New 112-lb. T.R. rail (shaded) in comparison with standard R.E. section

Below: New 112KM8 type of fishplate or joint bar



the standard A.R.E.A. 112-lb. section by having a head that is narrower, deeper, and considerably more rounded than the standard rail, avoiding the sharp corners at the underside of the head of the latter; the whole rail is slightly higher ($6\frac{3}{8}$ in. as against $6\frac{1}{2}$ in.); and the web is of a different design. Photo-elastic stress tests, made *in situ* on 112-lb. standard section rails, have shown that the taper of the web, which is from 0.816 in. at $1\frac{1}{2}$ in. above the base to an average of 0.600 in. thick from $3\frac{1}{2}$ in. to 4 in. above the base, has not been ideal from the stress-distribution viewpoint, and has probably been a contributory cause to rail-web failures. In the new section a more symmetrical web has been designed, 0.757 in. thick at $1\frac{1}{2}$ in. above base, a minimum of 0.627 in. thick from 3 to $3\frac{1}{2}$ in. above base, and 0.659 in. thick at 4 in. above base; the two sides of the web are curved to 20 in. radius, with the centre of the curve $3\frac{1}{2}$ in. above the base of the rail.

The head of the rail, curved to a radius

sides. The foot, which is unchanged in section from the standard 112-lb. rail-foot, is $5\frac{1}{2}$ in. wide, and has a 4 to 1 fishing angle; but, again with a view to the elimination wherever possible of sharp angles, the radius of the fillet joining the fishing angle to the web is increased from $\frac{3}{8}$ in. to $\frac{1}{4}$ in.

The new section, which is described as the 112-lb. T.R. (torsion-resisting) section, has a marked increase in torsional rigidity over the old section. This is of particular importance, because the torsional shearing stresses are added to the direct bending stresses in the web, and the fatigue limit in torsion is less than in compression or tension. By the shape of the head, 75 per cent. of the area of which is enclosed in a circle tangential to the running surface and the head-web fillets, the line of wheel contact is brought nearer to the centre line of the rail than hitherto, reducing the strains known to be set up by eccentric loading of the rail. It is expected that the concen-

tration of stress in the web and web fillets will be reduced by at least 20 per cent. The steel manufacturers advise that the T.R. section is easy to roll, and that the head profile makes it less susceptible in cooling to shatter-cracking than the A.R.E.A. section. A new 128-lb. per yd. T.R. section has also been designed on the same lines, and this, it is claimed, has the same moment of inertia as the existing 131-lb. A.R.E.A. section, and will give a 40 per cent. reduction in web stresses notwithstanding the fact that it is 3 lb. per yd. lighter in weight.

VAL DE TRAVERS RAILWAY.—This Swiss privately-owned line carried 857,000 passengers in 1943, against 828,900 in 1942. Goods traffic amounted to 79,000 metric tons (66,800 metric tons in 1942). Working receipts were higher at fr. 380,000 (fr. 346,170); but expenditure rose to fr. 510,000 (fr. 432,760), and a working loss resulted of fr. 130,000, compared with a loss of fr. 86,590 for 1942.

Chicago Underground Railway

The 5-mile State Street line is the first section of a Chicago underground railway system of 55 route miles

THE formal opening ceremony of the first section of the new underground railway system in Chicago took place on October 16, 1943, and the line was opened for public traffic on the next day, as briefly recorded in our issues of October 22 and December 24, 1943, respectively. The whole underground system—or what are termed subways in the States—was described in *The Railway Gazette* of May 31, 1940, as work began on the first two sections, the State Street and the Dearborn Street subways, as long ago as December, 1938. In 1940 it was expected that both would have been completed by January 1, 1941, but the war intervened, and, although the State Street section was “formally inaugurated” on March 29, 1943, difficulties in securing equipment deferred the

ground. In this way, elevated traffic radiating from the central loop will gradually be replaced by that over the subway lines, as these are opened, section by section. A general speeding up will then be possible and great relief will be afforded to the loop, on which, it is expected, the 68 trains mentioned above will be reduced to 38 during the same period. The time for the loop service will also be reduced to 10 min. The incline connection near Armitage Avenue was completed early in 1943, but the connection near 16th Street was not finished until shortly before the opening date. In their construction, old steel beams, columns, and bracing from the elevated structure were used as far as possible, to conserve the use of new steel.

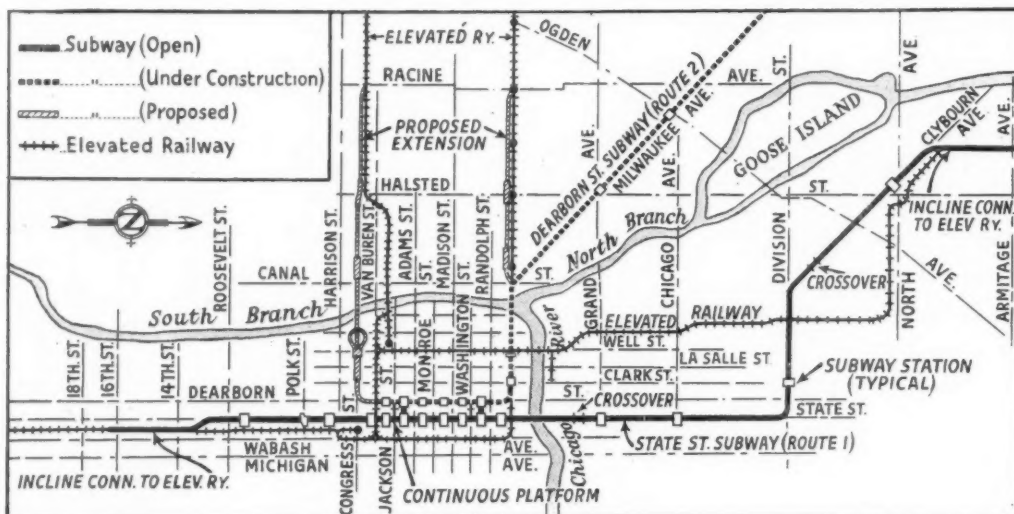
Except in the dips necessary to burrow

floated to site, there to be sunk in a dredged trench, so that there is only 5 ft. of bed above the tubes.

The Continuous Platform

Another special feature is that in the most congested area a continuous platform, 3,400 ft. long, is provided, with several station halls above it opposite the main blocks of buildings. This platform has berthing places for trains running over the various routes, arranged to distribute the streams of passengers most efficiently. This greatly assists in providing adequate terminal facilities for the rapid-transit lines, and relieves surface and elevated congestion in the heart of the city. In fact, the new subway effects this relief by diverting underground much of the north-south traffic directly beneath the loop area, and makes a general speeding up of traffic possible. It also opens up new residential areas and links them with the centre of the city.

Power on the new underground system



The Chicago underground passenger railway system, now in course of construction

opening to traffic for eight months. In the intervening period, exhibition trains were run to encourage the sale of War Bonds. Actually, the tunnelling was completed in January, 1941, but work on the stations in open cutting proceeded from then until May, 1943. A further article in our issue of April 2, 1943, briefly described the city's traffic, features of the construction, and equipment.

The whole underground system when complete will be 55 route-miles in length. The existing central loop of the elevated lines, a two-mile double track section, is at present very severely congested. It is fed by no fewer than 13 radiating branches and consequently has to carry as many as 68 trains each way during rush hours. Due to the many junctions where speeds are restricted to 6-7 m.p.h. the present loop service time is 17 min.

Incline Connections with Elevated

The new underground lines radiate from the centre of the city correspondingly, and connect with the existing elevated lines by means of inclines at the outer ends of the subways, thus permitting of through running from the suburbs first above and then under-

under the Chicago river, the general subway rail level is about 40 ft. below road level, and the station booking halls and circulating areas are some 15 ft. below the surface. Stairways lead down to the circulating areas and escalators are provided thence down to platform level. Some stations have side platforms but most are of the island type, 500 ft. in length.

The tunnels are either circular or horse-shoe in section, with walls of reinforced concrete. Excavation, except where the soil is too plastic, was by hand behind air locks under 12½ to 15 lb. pressure. Hydraulically-driven circular shields were used in the more plastic subsoil. Primary linings of light plates and ribs were first placed and the concrete was then poured. For the State Street crossing under the river, however, a special form of construction was used. As there are stations in the vicinity, it was necessary to keep this section as shallow as possible, and the crown of the tunnel as near the river bed level as was deemed feasible. Consequently, the 200-ft. twin tube section under the river was erected in dry dock, and enclosed and lined with concrete before being sealed with bulkheads and

is provided by a 600-V. d.c. feed to the third rail, which, to reduce the quantity of copper used in the parallel feeders, is of 144 lb. per yd. section; it is connected with the feeder cables every 1,000 ft. The running rails are continuously welded, but the third rail is not welded. Remote switchgear provides a complete supervisory control, with storage battery stand-by plant to function in case of failure. Special alarm signals are fixed at intervals in the tunnels, from which power to adjacent conductor-rail sections can be cut off immediately and warning given to the control room.

Normally, ventilation is provided by the movement of the trains, but fans are installed in the deeper sections of tunnel near the river, and in case of need elsewhere. Automatic and semi-automatic colour-light signals are used, together with electro-pneumatic train stops and point mechanisms. The new trains will consist of one or two units each composed of a three-car four-bogie articulated set, each car seating 106 passengers. All axes on the motor cars will be driven by 110-h.p. motors, capable of producing 3 m.p.h. per sec. acceleration up to a

(Continued on page 307)

Train Control on the N.S.W. Government Railways

Telephone and telegraph systems on an important Dominion State railway

By W. F. Barton,

Signal & Telegraph Engineer, New South Wales Government Railways

THE article which appeared in *The Railway Gazette* of February 25, 1944, dealing with the telephone and telegraph arrangements on the London & North Eastern Railway gives an interesting review of a British railway system, and has prompted the preparation of a short description of similar facilities in operation in New South Wales. It can be understood readily that a dominion State railway, except in the vicinity of capital cities, does not call for such concentration of facilities as in the case of the British railways.

The railways of New South Wales radiate from Sydney to places as remote as Broken Hill, 701 miles, on the western system; to Brisbane, the capital of Queensland, on the north, 613 miles; to Bourke, also on the north, 512 miles; and to Albury, the border station between New South Wales and Victoria, on the southern system, 401 miles. The South Coast line extends to Nowra, a distance of 95 miles, and branch lines scattered over thinly-populated areas bring the total of the network to 6,127 route miles, of which 45 miles are quadruple track, 657 double or treble track, and 5,425 single track. The provision of communication systems to cover a railway over such distances has involved heavy expenditure, and a vast quantity of material. The population of New South Wales is 2,870,000, and 45 per cent. of the people reside within 25 miles of the capital city, Sydney. The average number of staff of all grades employed on the railways is 51,168.

The city itself has an underground system of fast electric services serving the immediate suburban area, and carrying, during the morning and evening peak hours a total of 80,000 passengers an hour. The main administration offices are located in Sydney. The Railway Department has its own telephone and telegraph systems, erects its own lines and wires, and installs and maintains its own cable systems entirely distinct and separate (although in the case of the telephone services the systems are inter-connected) from the postal administration.

Practically the whole of the railways is equipped with telephone train control, in addition to various forms of safe-working equipment. In the immediate Sydney electrified area, power signalling, electro-pneumatic, and all-electric, with daylight colour-light signals and all-electric relay interlockings, provide the means of safeguarding effectively the intensive movement of trains. Outside the electrified area the double-line sections are controlled mainly by automatic signalling. Block instruments and manual signalling are used only on those sections where stations on double line have to be staffed for general traffic business and where automatic and power signalling would not be justified. The traffic on single lines is controlled by electric train-staff instruments, using tokens electrically interlocked. On the fast section of 100 miles between Junee and Albury, on the southern system, where limited express trains pass through the crossing stations at high speeds, these tokens are exchanged by automatic exchangers at speeds up to 70 m.p.h. In the sparsely-populated outly-

ing areas, where traffic is light, automatic electric train-staff instruments are worked by the train crews, and the crossing loops are designed and equipped with power-worked Home signals and track-circuited so as safely to expedite train movement and make crossings with a minimum of delay. The outstanding advantage of these automatic loops is that no staffing is necessary.

To provide communication systems to meet the exacting requirements of the New South Wales railway system has necessitated the installation of a cable system in the congested areas, with aerial lines on outlying sections. The pole line construction consists of wooden telegraph poles, mainly of ironbark timber, and the use of old rails. These rails are preferred because of reduced maintenance cost; the wooden poles are subject to the ravages of white-ants, notwithstanding constant treatment with ant-resistant solutions. The approximate mileage of conductor lines on poles totals 36,000.

In addition to the main automatic telephone exchange, branch P.A.B.X. switchboards are provided at suitable locations, and the whole form a network of a departmental telephone system comprising a total of 2,300 lines, to serve both the requirements of the headquarters administration organisation, with its ramification of departments and workshops, and to link with country areas.

The headquarters of the railway communication systems is located at Sydney Station, where special rooms are set apart for the telegraph, telephone, automatic telephone-exchange, and train-control systems. The main telegraph office is equipped with 16 Morse telegraph circuits, of which three are operated as duplex, nine as double-current, and four as simplex. Thirty-four operators are employed to maintain the continuous staffing of this telegraph office, and the volume of railway business transacted between Sydney and Melbourne, the capital of the adjoining southern State of Victoria, occupies continuously a duplex line.

The Sydney Station automatic telephone-exchange has a capacity of 1,250 lines, and is inter-connected with nine automatic branch telephone exchanges varying in capacity from 50 to 200 lines each. Staff connected to the railway automatic exchange can dial direct into the public telephone network, but calls incoming from the postal system to the railway automatic-exchange have to be handled on a manual switchboard. For the purpose of dealing with the 50 incoming junctions from the postal system, and to provide for the departmental omnibus telephone circuits and trunk lines, the manual switchboard has seven ordinary positions and one supervisor's position. The staff of this manual switchboard consists of fourteen women telephonists and two men supervisors.

In addition, there is a number of 100-line and smaller capacity manual switchboards for handling the trunk and circuit lines from various depot stations. The whole is inter-connected by means of junctions, and the calls handled at the main exchange average 34,000 a day on a Monday to Friday check, or approxi-

mately 9,000,000 calls a year. This number does not include outgoing calls to the postal system, which are approximately 850,000 a year.

As distinct from the automatic telephone-exchange and the manual switchboard, a separate office houses the telephones connected to the omnibus circuits, and 26 women telephonists are employed to cope with calls from suburban stations and outlying points throughout the system.

The telephone train control is operated from nine centres within the system, employing in all 19 independent train control circuits serving approximately 1,200 individual stations.

At Sydney Station, the South Coast, Western, Northern, and Southern train-control systems are located in separate sound-proof rooms. In addition, a "trouble" office, fully equipped for telephone communication over the whole suburban area, is maintained to cope with emergencies that arise within the congested network of the suburban railway system.

Because of the distances to be covered, every effort is made to obtain maximum capacity from the line wires provided for the various services. On the section between Sydney and Newcastle, a distance of 104 miles, there are four trunk-line copper conductors, so circuited as to provide six conversational channels, three physical and three carrier, and four composite Morse telegraph circuits. Carrier channel installations serve to provide through telephone services between Sydney and the outlying depots on the main and branch lines. By means of these services communication is readily established with the departmental telephone net work in the Sydney area, thus enabling the central organisation to keep in constant touch with all limits of the system.

NEW LINE IN SWITZERLAND.—It is reported that a scheme has been evolved for the connection of the isolated Stansstad-Engelberg Railway, Switzerland (its terminus, Stansstad, on the southern shore of the Lake of Lucerne, can be reached only by water or by road) with the metre-gauge Lucerne-Interlaken line of the Federal Railways. The connecting line would branch off the Lucerne-Interlaken line at Hergiswil, about 5 miles south of Lucerne, and would follow the shore of the lake as far as Stansstad. It would be about 2½ miles long. It is understood that a decision concerning the adoption of the scheme will be taken this year. The Stansstad-Engelberg system is electrically operated on the metre gauge.

Chicago Underground Railway

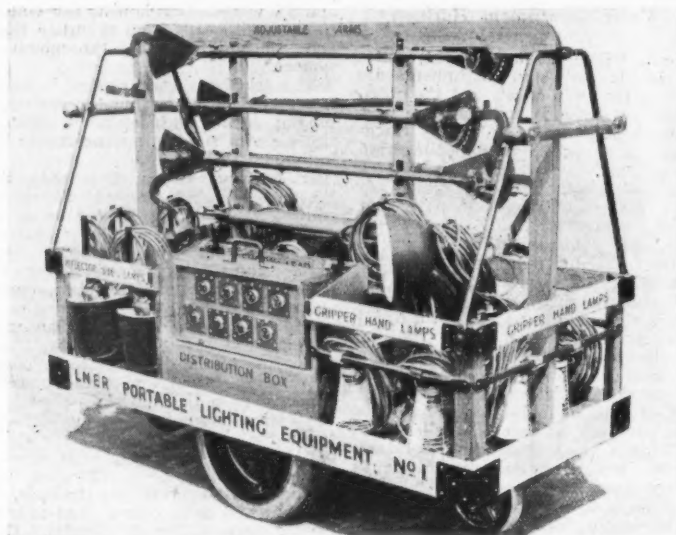
(Concluded from page 306)

maximum of 45 m.p.h. As, however, restriction on metal is preventing delivery of these trains, the new services are being worked for the time being with the existing steel cars of the Chicago Rapid Transit Company. Each of the motor cars has two 170-h.p. motors, and seats 52 passengers, though 100 in all can be accommodated. There are 389 motor and 66 trailer cars of this type available, sufficient to provide a 3-min. service in each direction on the new line.

The State Street subway is said to have cost \$34,000,000 and will, it is estimated, carry 75,000,000 passengers a year, when fully equipped. The ultimate cost of the whole 55-mile system is expected to total \$275,000,000.

Portable Lighting for Locomotive Repair Depots on the L.N.E.R.

Experimental use of specially designed equipment



GENERAL lighting of the usual works type often cannot be provided effectively in steam locomotive running sheds, chiefly because of the narrow spaces between adjoining engine roads. In wartime, blackout conditions add a further difficulty, even during daylight hours. To facilitate and speed up the overhaul of locomotives the L.N.E.R. has designed portable lighting equipment for the illumination of engines undergoing repairs, and six sets are to be tried out at various running sheds with a view to more extensive use throughout the system if found satisfactory.

To provide convenient handling and to economise flexible cable, the lighting equipment for each engine is divided into two sections, one for each side, as follows:—

Section A: Near (or l.h.) side—consisting of:

One portable 8 way-and-main plug and socket distribution box arranged to be hung on engine hand rail to which the following portable lights are plugged:

Three 60- or 100-watt general lighting units, suspended at the ends of adjustable outrigger rods hooked on to engine handrail.

Two 40-watt gripper handlamps for local use.

Two 25-watt tubular inspection lamps for examining interiors.

One 100-watt pedestal general light for use in the pit, to floodlight the engine from below.

Section B: Off (or r.h.) side—consisting of:

One 8 way-and-main distribution box, as above.

Three 60- or 100-watt general lighting units, as above.

Four 40-watt gripper handlamps, as above.

One 25-watt tubular inspection lamp, as above.

Trolley:

To provide for satisfactory maintenance and mobility of this equipment, a

suitably fitted trolley has been designed for accommodating the various items when not in use.

Electrical System

For reasons of safety, low voltage is used for the portable equipment, but as

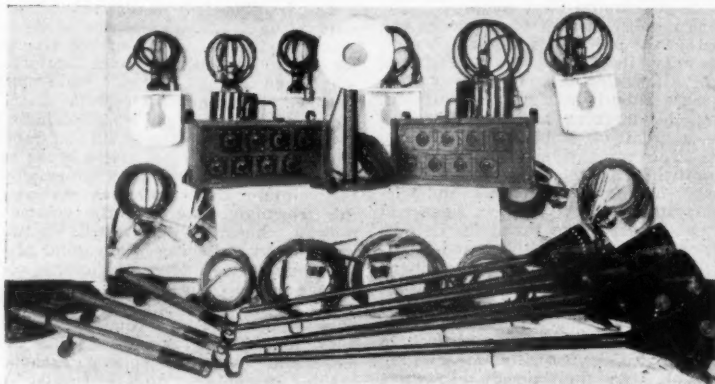
lamps if the latter be of what is known as the Home Office type. As the bodies of the plugs and sockets on the distribution boxes will be of metal the main flexible cables connecting them to the fixed 50-volt supply sockets must be of 3-cores and the main plugs and sockets of the 3-pin type, the third core being the earth wire.

All the portable lighting fittings, however, will take the form of Home Office type hand-lamps so that earthing of their metal parts is not necessary, and the flexible cables between the distribution boxes and the portable lighting fittings will therefore be 2-core.

Fixed supply plug points are of the 15-amp. 3-pin type fixed over the alley way at a sufficient height to clear a man leaning out of the cab of a moving engine and located one each side of an engine under repair, so that the main flex connected to each distribution box does not have to cross over the engine. There are thus two supply plug points for each engine under repair. The number of pairs of fixed supply plug points depends on the number of engine positions for repairs and varies with each shed.

The plugs and sockets at the fixed points and connecting the main flex to each distribution box are of the Reyrolle 15-amp. 3-pin type. The Reyrolle make has been adopted because the plug portion is enclosed in a metal cup which protects the pins from damage and also the hand from burns when opening a circuit. For the latter reason, this plug meets the Home Office requirements for breaking circuits, so that switches with their attendant maintenance troubles, cost, weight and bulk are avoided.

The plugs and sockets connecting the individual portable lamps at the distribu-



General view of a set of the equipment

certain of the lamps are as large as 100 watts, and the total loading on each distribution box may be just over 500 watts, it is not practicable to use a lower pressure than 50 volts. Double-wound 230/50-volt transformers are used with the mid-point of the secondary winding earthed, thereby limiting the voltage of possible shock to 25 volts.

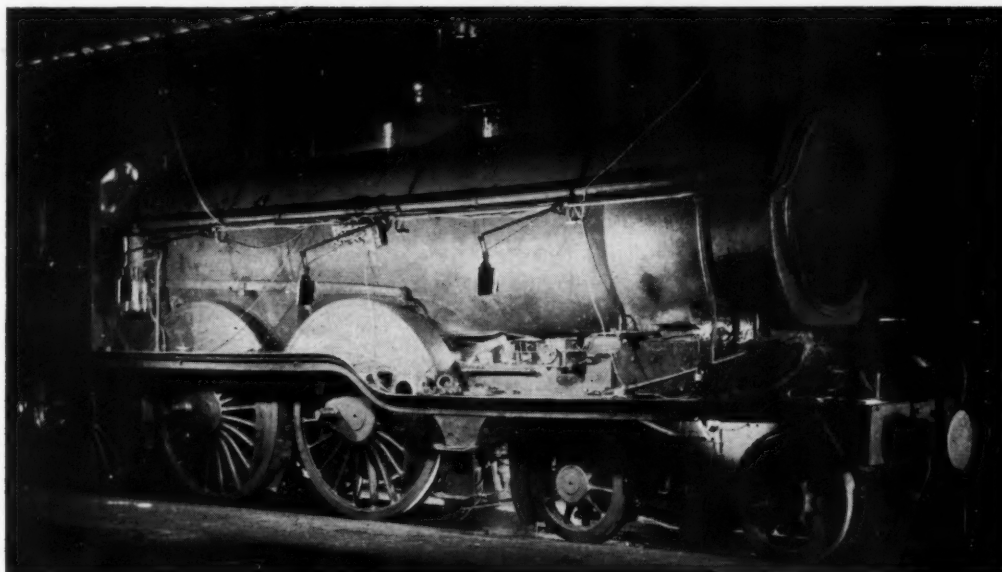
For one complete engine equipment the capacity of the transformer is 1.25 KVA, but larger transformers, multiples of 1.25 KVA, are used where two or more engine repair berths are immediately adjacent.

The Home Office Regulations require that metal parts of portable equipment shall be earthed with the exception of the metal guards, etc., of portable hand-

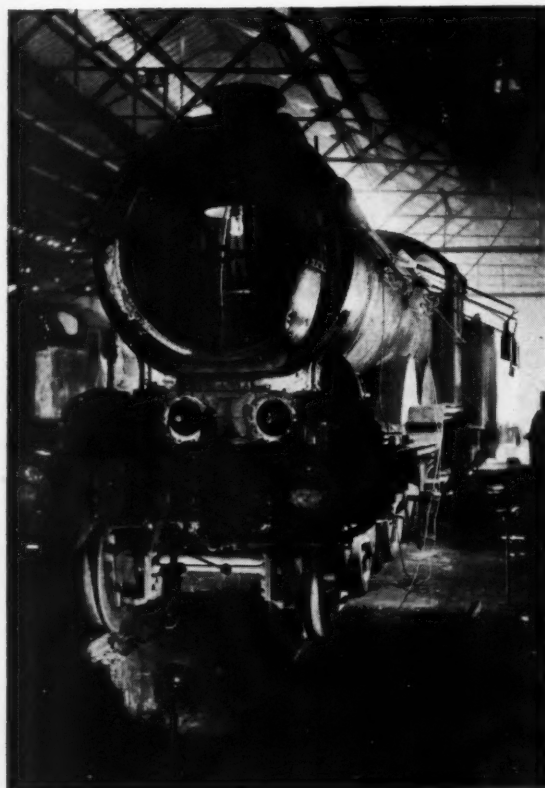
tion box are of the Reyrolle 5-amp. 2-pin low-voltage type and, to avoid possible accident, these plugs are made so that they will not enter normal voltage sockets.

(See also illustrations, opposite page)

CORROSION PREVENTION FOR METAL PARTS.—The British Standards Institution has issued specification 1133, Section 3 (Packaging Code, Corrosion Prevention for Metal Parts). Sections 1, 2, 4 to 10 and 12 to 16 of B.S. 1133 were issued in December, 1943, the binder of which also will accommodate this section. Copies of the specification may be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s., post free.



The portable lighting in use on a locomotive undergoing repair. A general impression of the efficiency and adaptability of the units



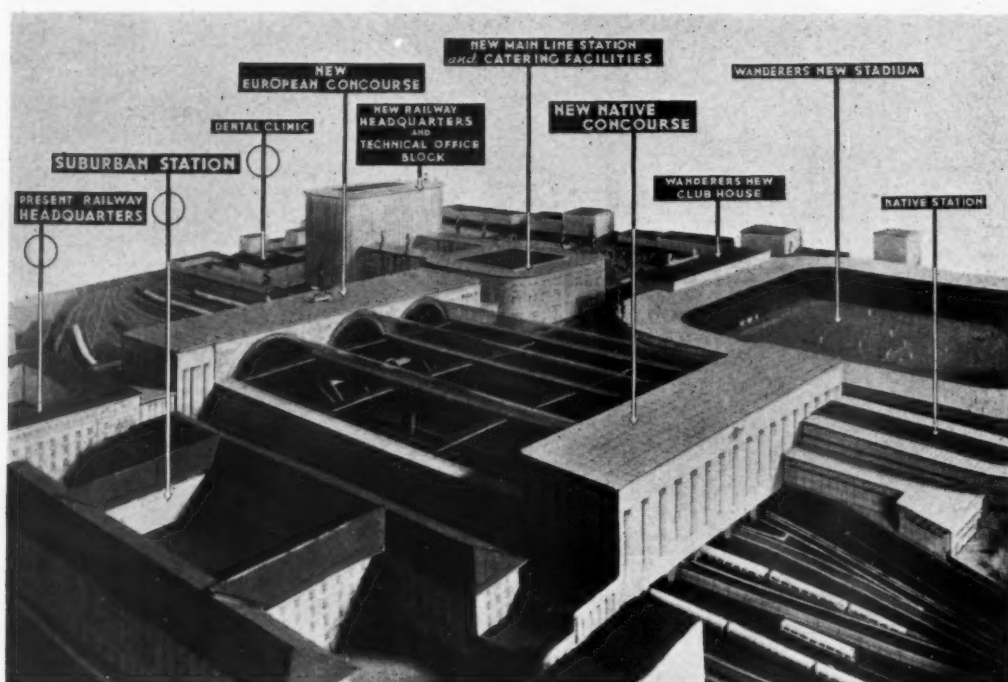
Front end view of locomotive under inspection



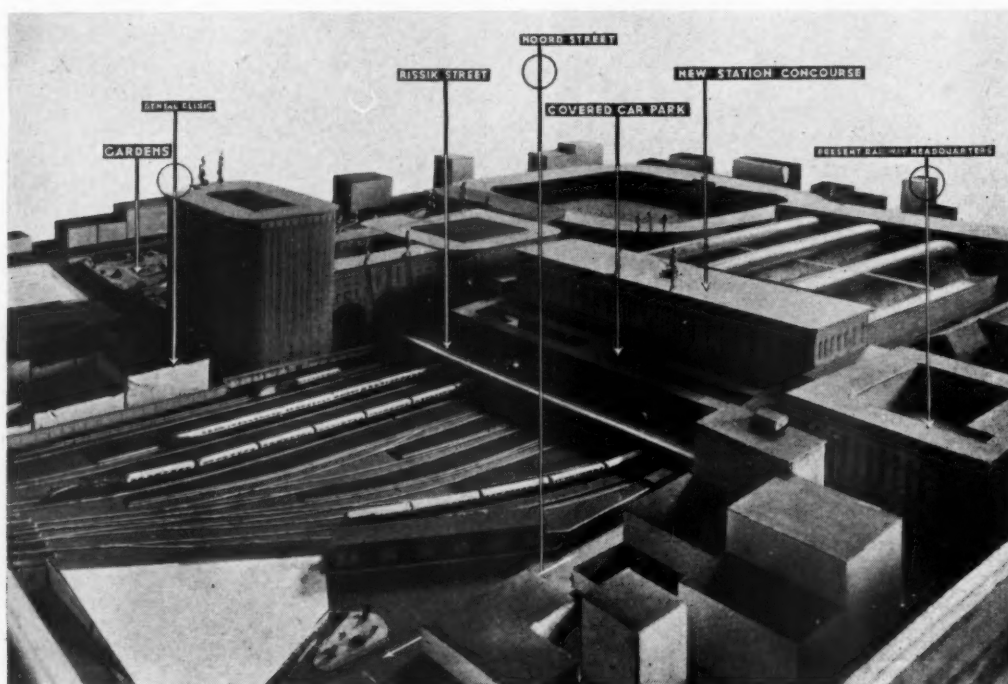
The cab and firebox illuminated by portable units

PORTABLE LIGHTING FOR LOCOMOTIVE REPAIR DEPOTS ON THE L.N.E.R.

Proposed New Station for Johannesburg



The proposed new station and other railway buildings for Johannesburg, according to the plan approved by the South African Railways & Harbours Administration, as they would appear when viewed from the north west



The layout as it would be seen from the north east. Circles on the indicators in both illustrations denote existing features

(See editorial note on page 298)

RAILWAY NEWS SECTION

PERSONAL

Mr. W. A. Anderson, lately Divisional Superintendent, Rawalpindi, North Western Railway, India, has been appointed General Manager, from September 9, in succession to Sir Arthur Griffin, O.B.E., appointed Chief Commissioner of Railways. Mr. A. M. Sims, C.I.E., Chief Engineer, N.W.R., is retiring, and will be succeeded by Mr. J. E. Heining, Deputy General Manager.

To mark the appreciation of the knighthood of Sir Eustace Missenden, General Manager of the Southern Railway, his chief officers entertained him to lunch on September 19 and made him a presentation.

At an investiture held at Holyroodhouse, Edinburgh, on September 21, the King invested Mr. Robert J. M. Inglis, Divisional General Manager (Scottish Area), L.N.E.R., with the insignia of a Companion of the Order of the Indian Empire.

Mr. Alfred R. Wagg (Chairman of Helbert, Wagg & Co. Ltd.) has resigned from the board of Thomas Tilling Limited. Sir Douglas H. Hacking, Bart., O.B.E., D.L., M.P., has been appointed a Director. Mr. Wagg has also resigned from the board of Tilling Motor Services Limited. Sir Douglas Hacking is a founder and Vice-President of the Travel & Industrial Development Association of Great Britain & Ireland, and a Director of the Bristol Tramways & Carriage Co. Ltd.

Mr. F. T. Bates has been re-appointed a Railway Commissioner, Union of South Africa, from September 1.

We regret to record the sudden death at Bangor, Co. Down, on September 18, at the age of 53, of Mr. Edward M. Forde, Assistant Secretary of the Eire Department of Industry & Commerce.

The late Mr. W. C. Lusk, who was Deputy-Chairman & Managing Director of Associated Electrical Industries Limited, and Chairman of the British Thomson-Houston Co. Ltd., left £96,941.

COLONIAL RAILWAY APPOINTMENTS

The Secretary of State for the Colonies has approved the following appointments:

Mr. W. A. Shaw, Assistant Engineer, Way & Works, Ceylon Government Railway, to be Deputy Engineer, Way & Works, Ceylon Government Railway.

Mr. T. A. Burnett, Commander, Marine Department, Kenya & Uganda Railways & Harbours Administration, to be Senior Marine Officer, Kenya & Uganda Railways & Harbours Administration.

Mr. B. F. Clayden, First Engineer, Marine Department, Kenya & Uganda Railways & Harbours Administration, to be Engineer-in-Chief, Lake Kioga, Kenya & Uganda Railways & Harbours Administration.

Mr. C. W. Putsey, Assistant Traffic Officer, Nigerian Railway, to be Senior Assistant Traffic Officer, Nigerian Railway.

Mr. John Shearman, M.I.Mech.E., M.I.A.E., Road Motor Engineer, L.M.S.R., who has been elected President of the Institution of Automobile Engineers for the 1944-45 Session, was born on June 17, 1886. He was educated at Westminster School, and in 1903 began an apprenticeship at the Crewe Works of the London & North Western Railway, combining this with a course of study at the Crystal Palace School of Engineering, and at University College, London. After a pupilage of one year under the late Mr.

Engineer, L.M.S.R. At that time the combined fleets of the companies which had been merged to form the L.M.S.R. totalled 1,447 units; to-day, it numbers 4,612 motor vehicles and 5,055 trailers and motor-driven appliances. Since 1941 Mr. Shearman has been Chairman of the Automobile Research Committee of the Institution of Automobile Engineers. In this, and in many other ways, he has taken a keen interest in the work of that Institution, and in 1939 was awarded the Crompton medal for the best Paper read before the senior section of the Institution during the 1938 Session. This Paper, entitled "Commercial Motor Vehicles for Short Mileage Work," was abstracted in the Road Transport Section of *The Railway Gazette* for November 18, and December 16, 1938. During the present war, Mr. Shearman has served on various advisory committees to Government departments, dealing with such matters as alternative fuels for motor vehicles, and he is at present Chairman of the Road Committee of the Railway Executive Committee. He represents the L.M.S.R. as a Director of Ribble Motor Services Limited.

Mr. Alban Ford has been appointed Press Officer of the British Omnibus Companies Public Relations Committee, with headquarters at 88, Kingsway, London, W.C.2.

Mr. R. P. Biddle (Docks & Marine Manager, Southern Railway), at present on Government service as Deputy-Director, Port & Transit Control, Ministry of War Transport, has been made C.B.E. for services in the planning of the landings in Normandy.

Mr. C. W. H. Harrison, Director, Publicity & Travel Bureau, London, South African Railways & Harbours, has been appointed Assistant Manager, Publicity & Travel Department, Johannesburg. He is succeeded in London by Mr. J. R. Naisby.

INSTITUTION OF CIVIL ENGINEERS

Among those recently transferred from associate membership to membership of the Institution of Civil

Engineers are Messrs. E. T. Davies, Resident Engineer, Chief Engineer's Office, Great Western Railway (stationed at Reading); and C. Gregory Jones, Acting Chief Engineer, Jodhpur Railway, India.

Mr. E. E. Ainger, B.E.M., A.M.Inst.T., who, as recorded in our September 8 issue, has retired from the position of Stationmaster, Norwich (Thorpe), L.N.E.R., commenced his railway career at Ardleigh, Great Eastern Railway, in 1899, and served also at Manningtree, Diss and Harwich in a clerical capacity. In 1913 he was appointed to the Ipswich District relief staff, on which he remained for twelve years. After twelve months' similar work in the London District, he became Assistant Stationmaster, Liverpool Street, in 1926. He was appointed Stationmaster, Tottenham, in 1928, and to the post from which he has now retired in 1930. Mr. Ainger was awarded the British Empire Medal (Civil Division) in 1943, for services to war transport.



Mr. John Shearman

President, Institution of Automobile Engineers, for 1944-45

George Whale, Chief Mechanical Engineer of the L.N.W.R., he was engaged in the Drawing Office at Crewe, and subsequently served as Assistant Locomotive Foreman at Rugby, Locomotive Foreman at Bushbury (Wolverhampton), Assistant to the Locomotive Running Superintendent at Crewe, and, in 1914, Outdoor Assistant to the Superintendent of the Line, L.N.W.R. On the outbreak of war in 1914, he rejoined the Inns of Court Officers Training Corps, and was commissioned to the A.S.C. Mechanical Transport. He went to France in 1915, in charge of the Ammunition Park, Mechanical Transport, 19th Division, which Company he subsequently commanded, and was Heavy Repair Shop Officer, Mechanical Transport. After demobilisation, Mr. Shearman was appointed Running Superintendent, Road Motor Department, L.N.W.R., a department which at that time controlled some 200 vehicles. In 1920 he became Road Motor Superintendent, L.N.W.R., and in March, 1925, after grouping, became Road Motor

Railways and the Flying Bomb



Track repair on the L.M.S.R. electrified suburban lines between Wembley and Stonebridge Park Stations, after the fall of a flying bomb one evening. Services were restored in time for the evening peak traffic of the next day



Demolished station buildings at Forest Hill, Southern Railway, after the fall of a flying bomb in the late evening of a Friday in June (see page 314)

TRANSPORT SERVICES AND THE WAR—261

Railway Winter Timetables

The Ministry of War Transport has announced that the new railway time-tables to be introduced on October 2 will provide services similar to those operated during the winter of 1943-44. Trains may still be cancelled without notice if movement of essential traffic would otherwise be impeded.

London Transport Winter Services

Winter train services on the London Transport railways will come into operation on Monday, October 2. Generally, these services will be similar to those at present in operation, but the evening peak-hour services will begin slightly earlier to provide for the earlier homeward journeys due to the lengthening blackout.

In view of the reduction in demand, in conjunction with the continuing need for economy in coal, it has been decided that early workmen's trains on Sundays will be discontinued generally from October 8.

Winter schedules for London buses, trams, and trolleybuses will be introduced towards the end of October.

Emergency Housing of Locomotive Staff

Even in peacetime, a request at short notice to accommodate 100 firemen and guards in a town with a normal population of 8,000 would have been far from an easy task, but in wartime the problems are multiplied. Recently, the Motive Power Superintendent of the L.M.S.R. announced that he was sending 100 firemen and guards to Bletchley to assist with war traffic, and, as the peacetime population of 8,000 has grown considerably, the chances of securing local accommodation were remote. Steps were therefore taken to provide emergency housing, and within ten days a complete billeting train consisting of a kitchen car, dining car (with clock), recreational carriage, three sleeping cars, and six camping coaches, was staffed with six cooks and six mess room attendants (so as to provide eight-hour shifts with two of each). The train was well equipped with food, and electric light, beds, and baths were ready.

The 100 or so residents in this hotel-on-wheels are guards and firemen from the North and Scotland, and R.E. personnel and Naval volunteers acting as firemen. Daily newspapers and magazines, draughts, darts, dominoes, and cards are provided in the recreational coach, and a "round-

the-clock" canteen service is available. In a week 1,564 hot meals, 758 breakfasts, 416 subsidiary meals, 379 teas, and 6,200 hot beverages are served.

Special Evacuation Trains

During the period of the official London and southern England evacuation scheme which began in July and ended on September 8, the British railways ran 2,345 extra trains from their London stations to carry women and children to the safe areas of the North, the Midlands, and the West Country. Of this total, 481 trains conveyed some 760,000 official and semi-official evacuees including mothers, children, the aged, infirm, and invalids. The remaining 1,864 were provided for the hundreds of thousands of evacuees who left of their own accord.

The official evacuation scheme also entailed running extensive feeder services both to London and in the Metropolitan area. These included the special provision of a further 424 trains (399 of which were operated by the L.P.T.B.), and the running of 4,797 special buses and 363 trams.

While the evacuation was in progress, the railways brought into London from various parts of the country 65,800 Anderson and Morrison shelters.

Lorry Drivers and the Flying Bombs

Civilian lorry drivers played an important part in meeting the menace of the flying bomb. Many of them drove night and day to move the guns and barrage balloon equipment which enabled Britain's defences to go into action immediately on a full scale. Others were responsible for towing across country to embarkation ports guns, shells, and other heavy equipment which helped to drive the enemy from his flying bomb bases. Transport for both movements was provided by the Government Road Haulage Organisation at the request of the Service Departments. Although Service transport undertook much of the high-priority haulage involved in making dispositions to meet the flying bomb attacks, many hundreds of civilian lorries were also employed in this operation. Drivers ignored restrictions on working hours, and drove day and night. One of the first orders received was to move eight guns, with their crews and ammunition, to a rendezvous 200 miles distant in the South of England. Some of the guns were to be towed, others to be loaded on vehicles. This call was received at 4 p.m. By

eight o'clock the next morning the convoy had reached its rendezvous where dispatch riders were waiting to conduct the lorries to the gun sites. A few hours later the guns were in action. Similar calls were pouring into road haulage offices all over the country. In every case, the response by the staff and drivers concerned was immediate, and delivery was made well within the scheduled time. On the completion of this movement orders were received to supply transport for the large numbers of winch trailers required for the balloon barrage. One group of 20 trailers—each weighing 4½ tons—was collected and towed 300 miles within 24 hours.

Train Heating

Heating on long-distance night trains and troop trains was restored on Monday last, September 25. The Railway Executive Committee has announced that heating on other trains will be provided on and from November 1.

Franco-Swiss Railway Traffic

It is reported that railway traffic between Geneva, Annecy, and Aix-les-Bains was resumed on September 20, establishing regular passenger and mail services between Switzerland and France.

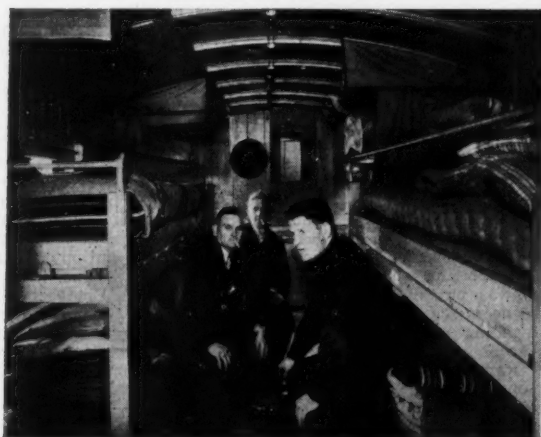
Dublin Tram Service Resumption

Dublin tram services are to be resumed on October 2 on the Dalkey, Terenure, and Dартry routes. As we recorded in our issue of June 23 (page 649), all tram services in Dublin were discontinued as from Monday, June 12, because of the drastic cuts ordered in electricity consumption in Eire. The trams were replaced by double-deck buses, taken from the Ballybough, Dundrum, and Oxmantown routes, and these vehicles will now be restored to those routes.

Heavy rainfall in recent weeks, and the generation of more electricity at Ardacrusha (Shannon Power Station), have made it preferable to restore electric tram services rather than to deplete still further the reserves of spare parts and tyres for motorbuses.

Philadelphia Train Service Curtailment

Between June 17 and September 16 on Saturdays, Sundays, and public holidays, the Pennsylvania, Reading, and Pennsylvania-Reading Seashore lines of the U.S.A. withdrew all passenger services between Philadelphia and Atlantic City and other coast resorts by the through Delaware Bridge route. At weekends, Philadelphia passengers for the coast re-



Emergency housing of war-time additions to locomotive staff at Bletchley, L.M.S.R. Left: Sleeping car. Right: Dining car

sorts were required to use the ferry to Camden and take the train there; and similarly in the reverse direction. The service between Camden and Atlantic City, as in 1943, was augmented. The shorter and quicker journey from Camden, as compared with the circuitous Delaware Bridge route, makes it possible to operate the service with one-third fewer locomotives and coaches; and thus during weekends there was a considerable release of rolling stock for military and essential civilian travel.

Wartime Development of Turkish Railway Traffic

The step taken by the Turkish National Assembly last August in severing diplomatic and commercial relationships with Germany gives topical interest to some statistical particulars recently issued by the Turkish Ministry of Commerce regarding the Turkish railway system since the outbreak of the war in Europe. The route length of the Turkish main railway lines is stated to have increased by approximately 310 miles to about 4,660 miles between 1938 and the 1941-1942 budget year, which is from July 1 to June 30. At the same time, the route-mileage of suburban lines increased by 12 to 86 miles. On the main lines the number of goods trains nearly trebled between 1938 and November, 1943, from a monthly average of 3,194 in 1937-1938 to a monthly average of 6,618 in 1941-1942 and 9,125 in November, 1943. The average mileage covered by a goods train was lower than pre-war, and the aggregate mileage was not more than double the pre-war figure. The monthly average mileage increased from 15,929,270 in 1937-1938 to 17,139,600 in 1940-1941, 32,229,900 miles in 1941-1942, and 34,962,300 in November, 1943. Goods conveyed, exclusive of livestock, increased by 69,000 tonnes to a monthly average of 454,000 tonnes in 1941-1942.

As already pointed out in *The Railway Gazette* of April 14, 1944 ("Turkish Transport Difficulties"), the number of passengers carried by the Turkish railways has increased considerably in the war years. Despite this, passenger train services have had to be curtailed to enable increased goods traffic to be handled without undue additional difficulties. Thus, on the main lines, the monthly average of passenger trains was reduced from 2,486 in 1938-1939 to 1,772 in 1942-1943. On the other hand, the monthly average mileage covered by these trains increased from 8,800,000 miles in 1937-1938 to a maximum of 11,200,000 miles in October, 1942, but dropped to a monthly average of 10,300,000 miles in 1942-1943. The total of passengers carried, exclusive of suburban passengers, increased rapidly from a monthly average of 700,000 in 1937-1938 to 1,400,000 in 1941-1942. For April, 1943, the total was 1,600,000 passengers, but the highest record was reached in October, 1942, with more than 2,000,000 passengers. The increase was somewhat less pronounced with suburban traffic, in which the 1941-1942 monthly average was about 700,000 passengers more than the figure for the year 1937-1938. The monthly average passenger mileage rose from 45,395,100 miles in 1937-1938 to 157,796,100 in 1941-1942, and 161,025,300 in 1943. The monthly average mileage per capita rose from 67 miles in 1937-1938 to 93 miles in 1941-1942, and was 88 miles in April, 1943.

Railways and the Flying Bomb

The following notes briefly describe two further examples of Southern Railway station damage sustained during the main flying bomb attack, and of the engineering work undertaken to achieve rapid restoration of facilities.

Wimbledon Station

Just after midnight on a Saturday in July (at 12.12 a.m. on the Sunday morning, to be precise), a flying bomb fell on the station premises at Wimbledon doing extensive damage to the station buildings and private property in the vicinity. The bomb fell in the goods yard road which leads to the east yard and near the open side of the station parcels and goods depot which were situated at road level. Above these offices were the north side booking office, and the Stationmaster's and enquiry offices. Beyond them, also at road level, were a range of single storey shops and ladies' waiting rooms, and behind them were uniformed staff accommodation, stores, and men's lavatories, with the main staircase connecting the north side booking hall, which is at street level, to the District Line concourse. The shops, waiting rooms, and offices were destroyed entirely, and the goods depot, lavatories, and staff accommodation damaged extensively. Damage was also caused to the main staircase and walls, and to the covering on roofs of the concourse and the ten platforms throughout the station. Two illustrations were published last week (page 287) showing something of the damage. Fortunately for such a busy station, there were comparatively few passengers or staff about at the time, and, although several persons were cut by glass fragments or suffered from shock, none was detained in the hospital to which the casualties were taken.

All lines were blocked immediately the bomb had fallen, and were examined at once. It was ascertained that they were undamaged, but strewn with debris, none of which was heavy. The work of clearing the lines for traffic was begun immediately with all the permanent way staff available, and the down main local, down main through, and up main lines, together with the down and up Sutton lines, were opened for traffic at 1 a.m. with a temporary speed restriction of 5 m.p.h. through the station. The up main local line, which runs alongside some of the damaged buildings and over which was hanging some of the cladding from the platform roof, was opened one hour later (under a similar speed restriction) after it had been ascertained that the adjoining buildings, although damaged, were stable. The permanent way staff was reinforced with building staff that had been called to the site, and broken glass and hanging fabric which might have been dangerous to the public were removed. When daylight came these men were further reinforced by others that had been called in the meantime, and a careful examination had been made of the whole of the damage. The work of strutting and supporting various parts of the buildings was put in hand forthwith, so that the necessary demolition could proceed pending reconstruction, and temporary accommodation for the stationmaster and staff was provided in carriages standing on one of the District Line platform roads. Short temporary possessions were taken of various lines throughout the Sunday for the purpose of loading away the broken glass,

debris, and so forth. The speed restriction was lifted entirely on the Monday morning from all roads except the up local line, upon which a speed restriction of 10 m.p.h. was imposed over the platform length. The District platform line nearest to the goods yard was used until 8.20 p.m. on the next Thursday for loading away debris, etc., but Nos. 2 and 3 roads had been opened to traffic at 5 a.m. on the Monday, the morning of the day after the incident.

Forest Hill Station

Forest Hill Station, Southern Railway, has four tracks, of which the outer (or local) lines are accommodated by separate platforms to which the up and down side station buildings are annexed, and the two centre (or main) lines are provided with an island platform of their own, with all platforms connected by a subway. A flying bomb fell in the late evening of a Friday in June at the up side of the line and almost demolished the whole of the station buildings on that side, together with an adjacent factory building occupied by a tenant of the Southern Railway Company. The remainder of the station received considerable damage from blast, progressively less towards the down side of the line. The island platform roof was destroyed, the roofing of the down side buildings was stripped, and there was damage to platform copings and surfacing. The windows and skylight of the company's sub-station alongside were smashed. In addition, the blast from the bomb penetrated to the subway, lifted the trough girders carrying the tracks 3 to 6 in., and damaged the structure under the up local line. All lines were heavily strewn with debris and were thrown out of alignment. Signalling equipment was damaged and the gas and water services were disrupted. All four tracks were blocked. An illustration is reproduced, page 312.

To re-open the running lines, railway gangs were drafted to the incident in the early hours of Saturday morning to clear the debris into ballast trains. This part of the work continued without interruption during Saturday, and the down local, down main, and up main lines were opened to traffic that day at 7 p.m., 7.20 p.m., and 8.40 p.m. respectively, the damaged tracks having been realigned and the lifted subway girders supporting them re-bedded on the walls of the subway. The clearance of debris continued without pause until Sunday afternoon. Emergency repairs put in hand in the meantime comprised temporary repairs to platform surfaces and wallings, placing waybeams in the up local line over the subway, the erection of temporary barricades on all platforms for the protection of passengers, and the provision of booking facilities on the up local line platform in a hut provided for the purpose. The existing down side booking office was brought into use again. The up local line was brought into service at 6.45 p.m. on the Sunday, and the station was made available for traffic. The work was effected by Divisional Engineer's staff, augmented by labour drawn from the London West Division and the Southern Division, and the services of a contractor who dealt with emergency repairs to the down side station buildings.

For the foregoing particulars, we are indebted to Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Railway.

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The Amalgamated Engineering Union became a party to the Machinery in 1929. The scheme provides for the establishment of Local Committees, Line Committees, and a National Council. The National Council comprises the Railways Staff Conference representing the railways on the one hand and eight delegates appointed by the trade unions on the other hand. If it is decided to submit to arbitration any matter on which agreement has not been reached,

the reference is to the Industrial Court. The Machinery for the Railway Police was set up under Section 67 of the Railways Act, 1921, and provides for the establishment of three separate Line Conferences on each railway, one for the Constables and Detectives, one for the Sergeants, and one for the Inspectors, with three Central Conferences comprising one representative from each of the Line Conferences and representatives of the Railways.

The three Central Conferences may sit together as one Conference and this is what actually happens in practice. In the event of the Central Conferences failing to reach agreement on any matter referred to them, an independent chairman may be appointed by the parties, or, failing agreement by them, by the Minister of Labour.

Decisions of the independent chairman are final and are binding upon the parties.

New Standard U.S.A. Wagon Designs

During 1942, to secure the maximum production of essential wagons, the Association of American Railroads took action to restrict wagon building to 13 standard designs, intended for use by all railways giving orders to wagon manufacturers. This was at the request of the Office of Production Management, which later became the War Production Board. The designs were prepared jointly by the Car Construction Committee of the Mechanical Division, A.A.R., and the Freight Car Design Committee of the American Railway Car Institute. In accordance with standard American practice, all designs were for bogie wagons; they comprised three types of box wagon, four gondola types, three flat types, two hopper types, and an "auto-box" wagon of special type.

In 1943, in the interests of steel conservation, and again under W.P.B. direction, 11 further designs were prepared, for composite wagons, in the construction of which both steel and wood were to be used. These comprised two 50-ton box wagon types, 40 ft. 6 in. and 50 ft. 6 in. long respectively; four 50-ton fixed-end gondola wagons; a 70-ton drop-end gondola wagon;

50-ton and 70-ton hopper wagons; and 50-ton and 70-ton flat wagons. The prospects of shorter life and heavier maintenance costs have made these composite types far from popular with the railways, some of which have postponed the placing of wagon orders while the purchase of composite wagons remained compulsory under W.P.B. instructions.

Restrictions on the use of steel having now been lightened, a reversion to all-steel construction has been authorised by the W.P.B., and 16 "Victory" designs have been evolved, in a number of which no wood will be used. The first is a bogie box wagon, 40 ft. 6 in. long inside, to carry 40 or 50 tons; the second resembles the first, except that the height inside is increased from 10 ft. to 10 ft. 6 in. The third is another box wagon, of 50 tons capacity, 50 ft. 6 in. long inside and 10 ft. 6 in. high, with three optional clear door openings, 6, 7, and 8 ft. wide respectively. There is next a 50-ton auto-box wagon, 50 ft. 6 in. long inside, 10 ft. 6 in. high, and with a clear door opening of 15 ft., or, optionally, an end-door arrangement. Two hopper-wagon designs are

available, 30 ft. and 40 ft. 8 in. long inside, and with cubic capacities of 2,145 and 2,773 cu. ft. respectively. The first two gondola wagon designs are 50-tonners, 41 ft. 6 in. inside length, 4 ft. 8 in. inside height, and of 1,840 cu. ft. capacity; one has a wood floor and the other a steel floor, and either can be fitted with six or eight drop doors. There are two additional 50-ton gondolas, one with fixed ends, steel floor, and 16 drop doors, having a length of 41 ft., a height of 5 ft., and a capacity of 1,948 cu. ft. when the contents are level full; the other, 48 ft. 6 in. long, 3 ft. 6 in. high, and with 1,383 cu. ft. capacity, has drop ends and a wood floor. Of the 70-ton gondolas, one, with a length of 52 ft. 6 in., height of 3 ft. 6 in., and 1,745 cu. ft. capacity, has drop ends and a wood floor; there are two designs 65 ft. 6 in. long, 3 ft. 6 in. high, and with a capacity of 1,776 cu. ft., one with a steel and the other with a wood floor; and the fourth is a drop end design, with wood floor built of heavier steel sections to give added strength and durability.

There are also two bogie flat wagons, both with wood floors, 53 ft. 6 in. long, one to carry 50 tons and the other 70 tons.

C.P.R. Wartime Dining Car Services

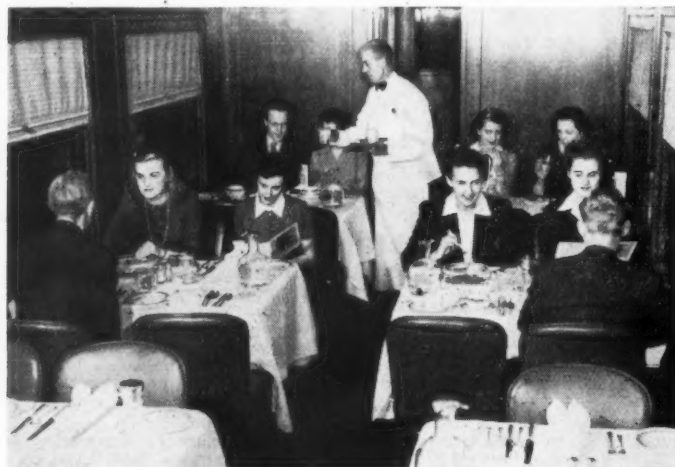
The amount of food provided for Service and civilian travellers during 1943 by the Canadian Pacific Railway is indicated by the recent announcement of the company that, in its dining cars alone, 3,600,000 meals were served. Compared with 1938, that figure represents an increase of 2,637,000. The number of meals served in restaurants throughout the system in 1943 also was considerably higher than in the last full pre-war year. Special commissary cars, for the accom-

modation of members of the Armed Forces, have been developed by the C.P.R., and have provided many of the meals served. With fatigue parties assigned for the distribution of meals throughout a troop train, a commissary car can feed over 500 men in a short time. In spite of difficulties caused by over-taxed facilities, enlistments, inexperienced help, food rationing, and other inconveniences, the high standard of C.P.R. dining-car service has been maintained. Menus

have been restricted only to the extent of prevailing ration regulations.

An example of ingenuity in adapting equipment to wartime needs is found in the conversion to full dining-car efficiency of former "buffet-parlour" cars. The company's dining car *Blomidon*, for example, has been made to seat 40 persons, or four more than the standard dining car in C.P.R. service; and provides a wash-room for passengers. The additional accommodation results from a plan whereby two pairs of tables, seating four persons each, are placed opposite each other at the vestibule end of the vehicle furthest from the kitchen; the restricted aisle space is thus out of the area in which the main movement of waiters takes place. The remaining tables are arranged on the usual basis of one to accommodate four, opposite one to seat two, persons.

The observation platform which formerly formed part of a "buffet-parlour" car has been made into a blind end to provide part of the space for a large ice box and a crew locker (ice, as in the case of coal, is loaded from the roof). The pantry is placed between the dining room and the kitchen, to prevent cooking odours from reaching passengers, and is equipped with fruit locker, cream and ice cream wells, dish-washing equipment, and other items. The insulated range in the kitchen is the centre of a complete cooking unit. The range itself has a double oven; beside it is a steam table to which are fitted a coffee urn, a cup warmer, vegetable pots, and meat trays. A carving tray, charcoal broiler, and plate warmer complete the equipment. The opposite side of the kitchen from the range is taken up by a long dresser, which includes a sink, two ice wells, and a pastry table containing four drawers.



A view showing the arrangement of extra seats in the C.P.R. dining car "*Blomidon*," described in the accompanying article

Third G.W.R. All-Line Trailer Pump Competition

Because of conditions in the London Area when arrangements were first made for the third G.W.R. All-Line Trailer Pump Competition, it was considered that for this year the venue should be the Parcels Depot Yard at Bristol, T.M. Station. The final competition was held in excellent weather and was witnessed by an enthusiastic crowd of spectators and the 14 men's and 11 women's teams taking part in the contest gave a great display of fire fighting efficiency.

The preliminary rounds of the contest between each station depot and yard teams were contested as keenly as ever and the winning teams met on a common ground at Bristol for the final.

The winning teams were: *Men*—Hockley Goods; *Women*—Paddington Goods. Below are shown results of the competing teams:

	Men	Time	Penalty	Total
1 Birmingham Division	Hockley Goods No. 2 ...	55 4 5 s.	—	55 4 5 s.
2 Newport Division	Pontypool Crane St. Tfc. ...	53 1 5 s.	5s.	58 1 5 s.
3 Docks Department	Cardiff Docks ...	56 1 5 s.	5s.	1 m. 1 1/5 s.
4 Bristol Division	Bristol T.M. Goods "A" ...	56 3 5 s.	5s.	1 m. 1 3/5 s.
5 Plymouth Division	Truro C.M.E. ...	57 1 5 s.	5s.	1 m. 2 1/5 s.
6 Chester Division	Shrewsbury Goods "A" ...	1 m. 4 1/5 s.	5s.	1 m. 9 1/5 s.
7 Swansea Division	Swansea High St. Tfc. ...	1 m. 9 4/5 s.	—	1 m. 9 4/5 s.
8 London Division "B"	Oxford R.M.E. ...	1 m. 0 1/5 s.	10s.	1 m. 10 1/5 s.
9 "A"	Paddington Fire Stn. ...	56s.	15s.	1 m. 11s.
10 Swindon Works	Carr. & Wagon Works No. 7A ...	1 m. 12 3/5 s.	10s.	1 m. 22 3/5 s.
11 Central Wales Divn.	Oswestry C.M.E. ...	1 m. 30 2 5 s.	20s.	1 m. 50 2 5 s.
12 Worcester Division	Kidderminster "A" ...	2 m. 19 1/5 s.	10s.	2 m. 29 1/5 s.
13 Exeter Division	Bridgwater Goods ...	—	No Drill	—
14 Cardiff Division	Canton Loco. ...	—	No Drill	—
Women				
1 London Division "A"	Paddington Goods ...	40 1 5 s.	5s.	45 1 5 s.
2 Bristol Division	Bristol (T.M.) Parcels ...	48 s.	—	48 s.
3 Birmingham Division	Hockley Goods No. 2 ...	47 s.	5s.	52 s.
4 Docks Department	St. Mellons I.S.D. ...	54 3 5 s.	—	54 3 5 s.
5 Exeter Division	Taunton Engineering ...	55 s.	5s.	1 m. 0 s.
6 Plymouth Division	Plymouth Goods ...	50 s.	10s.	1 m. 0 s.
7 Newport Division	Merthyr Traffic ...	55 1 5 s.	5s.	1 m. 0 1/5 s.
8 Chester Division	Shrewsbury Goods ...	57 2 5 s.	5s.	1 m. 2 2/5 s.
9 London Division "B"	Oxford Goods ...	54 2 5 s.	10s.	1 m. 4 2/5 s.
10 Swindon Works	Loco. Works F.S. Shop ...	55 2 5 s.	10s.	1 m. 5 2/5 s.
11 Swansea Division	Swansea High St. Tfc. ...	1 m. 48 1/5 s.	5s.	1 m. 53 1/5 s.

* Tie.

The presentation of the "Milne" Trophies—the "Milne" Cup for the men's team, and the "Milne" Challenge Shield for the women's team—was made by Mr. R. G. Pole, Divisional Superintendent, Bristol, who expressed his admiration at the excellent team work displayed by each member of the competing teams and he

at Bristol, who had rendered such valuable assistance in adjudicating the drills.

Mr. A. V. R. Brown, Divisional Superintendent, Birmingham, also expressed appreciation of the fine performance of the competing crews and added his tribute to the friendly co-operation of the National Fire Service.

G.W.R. Women's Winning Trailer Pump Contest Team



Mr. R. G. Pole, Divisional Superintendent, Bristol, with the winning women's team (Paddington Goods) after presentation of the "Milne" Challenge Shield

Among those present at the contest were:—

Messrs. H. A. Alexander, Divisional Engineer Bristol (also representing Mr. A. S. Quartermaine, Chief Engineer); A. V. R. Brown, Divisional Superintendent, Birmingham; A. W. H. Christison, Divisional Locomotive Superintendent, Newton Abbot; L. W. Conibear, Assistant Divisional Superintendent, Bristol; A. E. C. Dent, Road Motor Engineer; L. Edwards, Assistant Divisional Superintendent, Bristol; H. G. Gaut, Assistant Divisional Superintendent, Bristol; W. O. Gay, Junior Assistant to Chief of Police (also representing Mr. G. Stephens, Chief of Police); F. Holland, Divisional Engineer, Taunton; T. H. Hollingsworth, District Goods Manager, Bristol; V. R. Hurle, Carriage & Wagon Works Manager, Swindon; H. G. Johnson, Assistant to Chief Mechanical Engineer, Swindon; W. Lambert, Goods Superintendent, Paddington; W. Lampitt, Assistant District Goods Manager, Paddington; A. S. Mills, R.F.P.O. M.W.T.; G. Moon, Assistant Divisional Engineer, Bristol; H. H. Phillips, Divisional Superintendent, Cardiff; R. G. Pole, Divisional Superintendent, Bristol; C. J. Rider, Assistant Superintendent of the Line's Office, Cardiff; J. Russell, C.D.M.O., Cardiff (also representing C.D. Manager); C. L. Simpson, Divisional Locomotive Superintendent, Bristol; V. M. Skeels, District Goods Manager's Office, Shrewsbury; F. W. Tyler, R.F.P.O. M.W.T.; and J. L. Webster, M.B.E., Chief A.R.P. Officer (also representing Mr. Gilbert Matthews, Superintendent of the Line).

Maidstone Railway Centenary Exhibition

In circumstances which are outlined briefly in an editorial note (page 298) the railway first reached Maidstone, the County Town of Kent, exactly 100 years ago, on September 25, 1844. The centenary of this event is being celebrated by an exhibition of nearly 80 old prints, photographs, models, and contemporary newspaper reports in the Bentlif Gallery of the Maidstone Museum, which was opened by the Mayor of Maidstone, Alderman Sir H. Garrard Tyrwhitt Drake, on Monday last, September 25. The exhibition has been arranged by the Southern Railway, as successors to the old South Eastern Railway which opened the line in 1844 and continued to own it until grouping in 1923. The exhibits include loans from the Maidstone Museum, Canon Reginald B. Fellows, and Messrs. Frank E. Box, C. Hamilton Ellis, Charles E. Lee, and G. A. Nokes.

Before the opening ceremony, the following were the guests at luncheon of the Mayor and Mayoress of Maidstone:—

The Earl of Radnor, Deputy Chairman, Southern Railway; Messrs. John Elliot, Deputy General Manager, Southern Railway; Alfred C. Bossom, M.P., J.P., Member for Maidstone; R. M. T. Richards, O.B.E., Traffic Manager, Southern Railway; C. Grasemann, Public Relations Officer, Southern Railway; P. Nunn, Divisional Superintendent, Southern Railway; Alderman T. Armstrong, Deputy Mayor of Maidstone; Alderman Gordon Larking, Mayor-Elect of Maidstone; Canon A. O. Standen, Vicar of Maidstone; Major Claud Leney, D.S.O.; William Fisk, Borough Treasurer of Maidstone; Colonel C. D. Sheldon, D.S.O.; Messrs. Talbot Edmonds; Wilfred Sharp; A. J. Golding, Curator, Maidstone Museum; J. W. Bridge; A. C. Streatfield, Press Agent, Southern Railway; H. G. Wilson, Maidstone Goods Agent, Southern Railway; T. A. Oliver, Maidstone Stationmaster, Southern Railway; Councillor Butler; Major H. R. P. Boorman, Editor-Proprietor, *Kent Messenger*; Arthur Doody, Editor, *Tonbridge Free Press*; Charles E. Lee, Associate Editor, *The Railway Gazette*; and Charles F. Klapper, Assistant Editor, *Modern Transport*.

Sir Garrard Tyrwhitt Drake, in proposing the toast of "The Southern Rail-

way," spoke of his 60 years of experience of travel. One of his earliest train journeys was on the South Eastern Railway from Maidstone West to Charing Cross, when his nurse took him to visit the London Zoo (this provoked considerable laughter, as he is widely known as the possessor of the largest private Zoo in Great Britain). Maidstone was a nice town in which to live, with many amenities, including the lowest rates of any town in Kent. He paid tribute to the not inconsiderable achievements of the Southern Railway before the war, but hoped that it would be able to provide a business train in the post-war period covering the journey in less than an hour. In the summer of 1899, the old London, Chatham & Dover Railway had afforded facilities between Maidstone and St. Pauls in 53 min. non-stop for business passengers, but for more than 40 years the journey had taken not less than 65 min.

In reply, the Earl of Radnor referred to the apprehension and even horror with which some had viewed the original advent of the railway, but during the past century railways had become the most important part of the transport of this country. The Southern Railway welcomed all constructive criticism, and would certainly give sympathetic consideration to the plea of Maidstone for a fast post-war service. It no longer regarded itself as only a railway, for it also owned road, steamer, and air services, and thus looked upon itself as a transport undertaking in the full sense. He hoped that the war achievements of the railways would be borne in mind to their credit when post-war changes were being considered.

Mr. Alfred C. Bossom also congratulated the Southern Railway on its achievements, but criticised its pre-war catering and certain other features. He claimed to have travelled between Maidstone and the House of Commons by car in past years in 47 min.

Mr. John Elliot made reference to possible post-war developments with light-weight rolling stock, and to the investigations of the respective popularity of open and compartment stock for different types of service. The Southern Railway, he said, was essentially a passenger line, as 75 per cent. of its business came through passenger traffic. The railways believed in air transport as a primary method of transport which they would not subordinate in any way. While continuing to build the finest cross-Channel ships, they hoped to provide on a worthy scale both internal air lines, and also those between the United Kingdom and the Continent of Europe, and to give the travelling public the best of all forms of transport.

THE WAR AT SEA IN PICTURES.—An exhibition of 54 pictures painted by Mr. Norman Wilkinson and presented to the nation was opened at the National Gallery, London, last week. This represents some two and a half years of work by Mr. Wilkinson in telling the story of the war at sea. Some of them, like the *Last Fight of the Jervis Bay*, *The End of the Bismarck*, and *The Boarding of the Altmark* have already had a fairly wide circulation in the illustrated papers, although nearly all these reproductions lose much of the vivid colouring, particularly the blues, which are so typical of Mr. Wilkinson's work so familiar to those who recall his posters of cross-channel railway steamers.

Notes and News

Agreed Charges.—A notice signed by Mr. Jacques Abady, Deputy Registrar of the Railway Rates Tribunal, shows that 202 more applications for the approval of agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the tribunal. Notices of objection must be filed on or before October 10.

The Road Association Merger.—The Associated Road Operators Limited is to hold its first extraordinary general meeting in connection with the amalgamation of road transport associations at the Kingsway Hall, London, W.C.2, on Wednesday, October 25, at 2.30 p.m. This will be preceded by the annual general meeting of the association in the morning.

Institution of Electrical Engineers.—Sir Harry Railing, D.Eng., will give an Inaugural Address as President of the Institution on Thursday, October 5. Other forthcoming Ordinary Meetings include a paper on "Electrostatic Precipitation of Dust from Boiler-Plant Flue-Gases," by Mr. J. Bruce on Thursday, November 2, and a paper on "Standardisation and Design of A.C. Turbo-Type Generators," by Mr. G. A. Juhlin on Thursday, December 7. An informal meeting is to be held on Monday, October 23, for a discussion (opened by the President) on "The Engineer's Part in Certain Post-War Problems." All the above meetings are to be held at the Institution, Savoy Place, Victoria Embankment, London, W.C.2, at 5.30 p.m.

Institute of Transport Metropolitan Graduate and Student Society.—An address will be given by the President of the Institute, Mr. Robert Kelso, on October 21, at 2.15 p.m., at the Institution of Electrical Engineers, Victoria Embankment, W.C.2. Other forthcoming meetings of the Institute, all of which are to be held at the Institution of Electrical Engineers on Saturday afternoons at 2.15 p.m., are "Co-ordination of air and surface transport," by J. F. Parke, on November 18, "Coal—its conservation in the post-war period," by H. H. Crow, on December 9, "The trader and post-war transport," by R. G. Brewer, on January 20, "Education and transport," by J. A. R. Turner, on February 17, "Cross country rail services in Great Britain," by A. F. Wallis, on March 17, and "Government control of railways," by C. F. Klapper, on April 21.

U.S.A.-Built Railway Equipment for France.—Reuters reports that orders for one hundred million dollars' (£25,000,000) worth of locomotives, to rehabilitate the French railway system, are being negotiated in the U.S.A. Purchases of freight and passenger vehicles, track and miscellaneous equipment which, it is stated, may involve over another one hundred million dollars, are in a less advanced stage of negotiation, but, apparently, are definitely scheduled to take place. A French engineering group now in Washington has completed specifications for approximately 700 locomotives scheduled for delivery in 1945. It is understood that, pending official recognition by the United States of the French Provisional Government, the United States Government will underwrite the cost of the purchase of the locomotives; and that later the obligations will be assured directly by the French Government, which has large blocked assets in the United States.

London Transport Wall Map-Guides.—A map-guide of the bus and trolleybus routes in the Hammersmith area—the first of its kind—is now exhibited at the District

and Metropolitan Line stations of London Transport in Hammersmith Broadway. Many passengers arriving at Hammersmith by train wish to travel by bus or trolleybus to places further afield. The new map-guide clearly shows the destinations and route numbers of all routes passing through Hammersmith Broadway, and a simple diagram directs passengers to the exact point in each thoroughfare where the bus or trolleybus can be boarded. A similar

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices	
			Sept. 26, 1944	Rise/ Fall
G.W.R.				
Cons. Ord. ...	65½	57½	57½	+ 1½
5% Cons. Pref. ...	120½	108	115½	—
5% Red. Pref. (1950) ...	110½	106	105	—
5% Rt. Charge ...	137½	123½	130½	—
5% Cons. Guar. ...	135½	121½	126½	—
4% Deb. ...	118	107½	114½	—
4½% Deb. ...	119	109½	115½	—
4½% Deb. ...	124½	116	120½	—
5% Deb. ...	138	127	133½	—
2½% Deb. ...	77	72½	74½	—
L.M.S.R.				
Ord. ...	34½	28	30	+ ½
4% Pref. (1923) ...	66½	58	58½	+ 1½
4% Pref. ...	80½	73	74½	—
5% Red. Pref. (1955) ...	105½	102	103½	—
4% Guar. ...	107	98½	100	—
4% Deb. ...	109½	103½	105½	+ ½
5% Red. Deb. (1952) ...	111½	108	109½	—
L.N.E.R.				
5% Pref. Ord. ...	12½	7½	8½	—
Def. Ord. ...	5½	3½	4½	—
4% First Pref. ...	66½	57½	58½	+ 1½
4% Second Pref. ...	36½	30½	30½	—
5% Red. Pref. (1955) ...	99½	93	98½	—
4% First Guar. ...	102½	94	98	—
4% Second Guar. ...	93½	85½	89½	—
3% Deb. ...	86½	78½	83	+ ½
4% Deb. ...	109½	101½	105	+ 1½
5% Red. Deb. (1947) ...	106½	102	102½	—
4½% Sinking Fund Red. Deb. ...	108	103½	105½	—
SOUTHERN				
Pref. Ord. ...	80	72½	74	+ ½
Def. Ord. ...	26½	20½	24½	+ ½
5% Pref. ...	119½	106½	114½	—
5% Red. Pref. (1964) ...	114	108½	113½	—
5% Guar. Pref. ...	136	122	127½	—
5% Red. Guar. Pref. ...	117	109½	113½	—
4% Deb. ...	117½	106	112½	—
5% Deb. ...	137	126	133	—
4% Red. Deb. (1962-67) ...	112	106½	109½	—
4% Red. Deb. (1970-80) ...	112	107	109½	—
FORTH BRIDGE				
4% Deb. ...	109	104½	104	—
4% Guar. ...	105	102½	102½	—
L.P.T.B.				
4½% "A" ...	125½	114	120½	—
5% "A" ...	133½	123	130½	—
3% Guar. (1967-72) ...	100½	97	99	—
5% "B" ...	124	114	121½	—
"C" ...	72	53	68	+ 1
MERSEY				
Ord. ...	34½	27	34	—
3% Perp. Pref. ...	68	59½	69	—
4% Perp. Deb. ...	104	102½	103	—
3% Perp. Deb. ...	83	78½	79	—
IRELAND* BELFAST & C.D.				
Ord. ...	9	6	10	—
G. NORTHERN				
Ord. ...	24½	16	23	+ 1½
Pref. ...	—	—	39½	—
Guar. ...	—	—	63	—
Deb. ...	—	—	83½	—
G. SOUTHERN				
Ord. ...	30	9½	57	+ 2
Pref. ...	30	11	58½	+ 2½
Guar. ...	64	26½	73½	—
Deb. ...	88½	51½	95½	+ 1

* Latest available quotation † xd

facility is to be introduced shortly at Golders Green underground station, and, possibly, at other busy centres where there is a large interchange traffic from rail to road services.

Beira Railway Receipts.—For the month of July, 1944, the approximate gross receipts of the Beira Railway Co. Ltd. were £90,014 and for the ten months ended July 31, 1944, were £814,071 as compared with £77,717 and £683,286 for the corresponding periods in the previous year. The number of miles open was 204.

Rhodesia Railways Earnings.—Approximate gross receipts of the Rhodesia Railways Limited for the month of July, 1944, were £540,829 and for the ten months ended July 31, 1944, were £5,371,806, as compared with £556,419 and £5,001,842 respectively for the corresponding periods in the previous year. The number of miles open was 2,442.

Institute of Fuel.—On Wednesday, October 4, at 2.30 p.m., Dr. K. R. Fehling will present the first paper in the series on "Thermal Insulation" at a meeting to be held at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1. A luncheon will be held at the Connaught Rooms, on Thursday, October 12, at 12.30 p.m. for 1 p.m., at which the Rt. Hon. Lord Woolton will be the principal guest; it will be followed by an Address by the President, Dr. E. W. Smith, C.B.E., and the Melchett Lecture by Dr. J. G. King, O.B.E., at 2.15 p.m. The Midland Section will hold a meeting at the James Watt Memorial Institute, Birmingham, at 2.30 p.m., on Wednesday, October 25, for a précis and discussion of the paper on "Superheaters for Water-Tube Boilers," by L. C. Southcott and D. W. Rudorff.

Laycock Holdings Limited.—An extraordinary meeting has been called for October 10 to wind up the company voluntarily, appoint the Chairman (Mr. Herbert E. Hill) as liquidator, and distribute the company's holdings in Birfield Industries Limited of £316,000 six per cent. "L" redeemable preference and £40,000 "L" ordinary stock. For each 15s. Laycock stock, holders will be entitled to £1 Birfield preference, and for each £20 Laycock stock to £3 Birfield ordinary. In 1938 the company changed its name from Laycock Engineering Co. Ltd., sold the undertaking to Birfield Industries, which resold to a new company, Laycock Engineering Co. Ltd., formed to take it over. Since then the only substantial asset of Laycock Holdings has been stock of Birfield Industries.

Institution of Mechanical Engineers.—A Presidential Address, "Applied Research," by Dr. K. R. Ricardo, B.A., F.R.S., M.I.Mech.E., to be given on Friday, October 20, is among the forthcoming meetings of the Institution of Mechanical Engineers. Others include an Informal Meeting on Friday, October 27, when Mr. Edward Reeve, M.I.Mech.E., will present a paper on "The Influence of Engineering on Social Advancement," an Extra General Meeting on Friday, November 3, when Professor A. J. Sutton Pippard, M.B.E., D.Sc., will present a paper on "Stresses by Analysis and Experiment," and an Informal Meeting on Friday, November 24, when Mr. W. S. Graff-Baker, M.I.Mech.E., will present a paper on "Mechanical Engineering Problems of London Transport." All the above meetings are at 5.30 p.m., and are to be held at the Institution, Storey's Gate, St. James's Park, London, S.W.1.

Northern Ireland Road Transport Board Offices.—New offices at the corner of Lower Donegall Street and Royal Avenue, Belfast, have been acquired by the Northern Ireland Road Transport Board for the accommodation of the accounts branch.

The Sierra Leone Government Railway.—Revenue and expenditure of the Sierra Leone Government Railway for the financial year ended December 31, 1943, was £311,517 and £365,885, respectively, representing increases of 2.8 per cent. in revenue and 33.5 per cent. in expenditure compared with the previous year. This system comprises 310 miles of 2 ft. 6 in. gauge railway; a map was published in our issue of July 28 last, page 87.

Regional Associations for South African Native Railway Workers.—In an interview, Mr. F. C. Sturrock, South African Minister of Transport, stated recently that he intended instituting a staff association for native railway workers upon a regional basis. Through such an organisation he could ascertain the needs of native workers. European railway workers had their own associations recognised by the Minister, and were divided according to the various interests involved. So far as natives were concerned, the Minister considered that their interests were more or less peculiar to their own group, and for this reason the proposed organisation would be on slightly different lines.

Mexican Railway Plans.—The Mexican Embassy at Washington announces that the Mexican Government is prepared to spend \$54,000,000 to modernise railways, reports Reuters. The General Electric Company of America has been awarded a contract for the supply of 16 diesel engines, seven of which have been delivered. The Government is planning to construct 770 kilometres of rail lines to Yucatan, 640 kilometres on the Tampico-Mexico City

line and 520 kilometres Sonora-Lower California, and to rehabilitate the Tehuantepec line which was built by the British. The Embassy also reports that 200,000 United States tourists have visited Mexico in 1944, spending \$90,000 and an increase is expected next year.

Post-War Railway Air Services.—Speaking at the Maidstone railway centenary celebrations on Monday, Mr. John Elliot, Deputy General Manager, Southern Railway, emphasised the faith of the British railways in post-war air transport as a primary method of transport. "We shall not subordinate air transport to the railways in any way," he said, "but shall continue to build the finest cross-channel ships and effect improvements to the railways. The British railways hope to give the travelling public the best of all forms of transport, and, acting together, to provide on a worthy scale both internal air lines and also those between the United Kingdom and the continent of Europe."

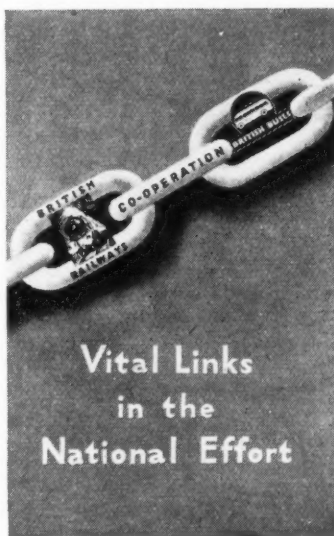
Contracts and Tenders

The American Car & Foundry Company is reported to have received an order for five all-steel express luggage cars from the New York, Chicago & St. Louis Railroad. Domestic inquiries in the U.S.A. for railway goods vehicles are said to be mounting sharply.

Below is a list of orders placed recently by the Egyptian State Railways:—

James Archdale & Co. Ltd.: Milling machine.
Marconi's Wireless Telegraph Co. Ltd.: Wireless material.
British Tabulating Machine Co. Ltd.: Hollerith cards.
Callenders Cable & Construction Co. Ltd.: Adhesive tape.
National Gas & Oil Engine Co. Ltd.: Power house instruments, pressure gauge.
Whitelegg & Rogers Limited: Spares for grease lubricated engine.
Dewrance & Co. Ltd.: Packing rings, asbestos packing.
Ruston & Hornsby Limited: Piston.
Vacuum Oil Co. Ltd.: Sight feed glass rubber packing rings.
Feroo Limited: Brake lining.
Bells Asbestos & Engineering Limited: Steam gland packing, etc.
Richard Klinger Limited: Jointing, etc.
Turner Bros. Asbestos Co. Ltd.: Asbestos packing.
Tuck & Co. Ltd.: Packing, etc.
Potter Cowan & Co. Ltd.: Copper joints.
Edison Swan Electric Co. Ltd.: Valves, etc.
Zenith Electric Co. Ltd.: Zenith resistances.

Co-Operation



Poster which is being exhibited on railway stations and bus sites to inaugurate the joint road-rail prestige campaign by the British main-line railways and the British Omnibus Companies Public Relations Committee (see editorial note, page 298)

Forthcoming Meetings

October 3 (Tues.).—Institution of Automobile Engineers, at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1. 6.15 p.m. "History and conjecture," by Mr. John Shearman.
October 4 (Wed.).—Institute of Fuel, at the Institution of Mechanical Engineers, 2.30 p.m. "Thermal Insulation—I" by Dr. H. R. Fehling.
October 5 (Thu.).—Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C. 2. 5.30 p.m. Inaugural address as President by Sir Harry Railing, D.Eng.
October 12 (Thu.).—Institute of Fuel, at the Connaught Rooms, 12.30 p.m. for 1 p.m. Luncheon with the Rt. Hon. Lord Woolton as principal guest, followed by an address by the President, Dr. E. W. Smith, C.B.E., and the Melchett Lecture, by Dr. J. G. King, O.B.E., at 2.15 p.m.

Railway Stock Market

Stock markets have been quiet with very little fresh buying, although the general undertone was steady. British Funds were well maintained, leading industrials slightly higher on balance, and foreign stocks inactive, apart from Brazilian bonds, which continued to move upward. Home railways further improved on balance; they responded to moderately improved demand based on the substantial yields; the firmness maintained has aroused hopes that prices may show a strong rally when markets generally become active. There is wider realisation of the point that the outlook for virtually all major industries will be bound up with Government policy as to industry, and that the problems that will have to be solved as to the railways are probably no more complicated than those of many other industries which also are awaiting indications as to Government policy on the extent wartime controls are to be continued, etc. In favour of home railway junior stocks is the probability that the fixed rental agreement will be maintained until the post-war set-up of the railways has been finally decided, and that until such time, dividends at around current rates may very well continue.

Argentine railway stocks moved back further; the disposition was to await indications as to political trends in the Republic. Moreover, it is felt that the position of the railways is likely to be

more clearly assessed when the financial results and annual statements for the year ended June 30 are published. French railway sterling bonds were less active, but quotations have been quite well maintained. Elsewhere, Mexican Railway 6 per cent. debentures after touching 17 moved back to 16. Barsi Light Railway ordinary stock further improved to 120, attributed to Indian buying and market talk that this may be the next railway likely to be taken over by the Indian Government. Canadian Pacific again reflected the better tendency in dollar stocks. Brazilian issues were firm, partly in sympathy with the rise in Brazilian bonds.

Gains in home railways included L.M.S.R. and L.N.E.R. preference stocks, which offer good yields and in any case should receive dividends at current rates in the post-war period if the railways receive a fair deal and there is a large measure of success in securing full employment of the country's labour and resources. Compared with a week ago, L.N.E.R. first preference has moved up from 57 to 58½, and the second preference strengthened from 30½ to 30½. L.N.E.R. debentures also improved, the 3 per cents to 83, and the 4 per cents to 105. L.M.S.R. senior preference was 74½, compared with 73½ a week ago; the 1923 preference at 58½, also gained a point, with the ordinary stock fractionally higher at 30. There was investment buying of

debentures; L.M.S.R. 4 per cents hardened to 105½. Great Western ordinary further rallied from 56½ to 57½; the 5 per cent. preference kept at 115½, and the 4 per cent. debentures at 114½. Among Southern stocks, the preferred further improved from 73½ to 74½, and the deferred was 24½, with the 5 per cent. preference again 114½, and the 4 per cent. debentures 112½. London Transport "C" participated in the better tendency, rallying from 66½ to 67½.

B.A. Gt. Southern ordinary remained at 12, but the 5 per cent. preference eased to 23½, the 6 per cent. preference to 17½, and the 4 per cent. debentures moved back from 57½ to 55½. Central Argentine ordinary was fractionally better at 8½, although the 5 per cent. debentures eased to 55 and the 4 per cent. debentures to 50. B.A. Western 4 per cent. debentures were 49½ and B.A. & Pacific 4½ per cent. debentures 51½. Antofagasta ordinary strengthened to 10½ with the preference 41.

Elsewhere, San Paulo was firm at 48½. Gt. Western of Brazil £10 ordinary changed hands around 32s. 6d.; the £10 preferred were active up to 55s., and the 6 per cent. debentures marked around 73. United of Havana debentures were slightly better at 26½. Among French rails, Midi at 73½ was maintained on balance, but Nord eased slightly to 85½. Canadian Pacific were 15; the 4 per cent. strengthened to 68½.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ending	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or stock	Prices						
			Total this year	Inc. or dec. compared with 1942/3		Totals		Increase or decrease		Highest 1943	Lowest 1943	September 26, 1944	Yield % (See Note)			
						1943/4	1942/3									
South & Central America	Antofagasta (Chili) & Bolivia	834	17.9.44	£ 26,630	—	£ 5,560	37	£ 1,087,460	£ 1,059,860	+	27,600	Ord. Stk.	15½	10	11	Nil
	Argentine North Eastern	753	16.9.44	17,730	+	3,852	11	184,362	159,204	+	25,158	Ord. Stk.	7½	5	5	Nil
	Bolivar	174	Aug., 1944	5,854	+	1,346	35	42,517	41,913	+	604	6 p.c. Deb.	22½	18	17½	Nil
	Brazil	2,807	16.9.44	113,400	+	15,000	11	1,242,660	952,620	+	290,040	Ord. Stk.	8½	5½	5½	Nil
	Buenos Ayres & Pacific	5,080	16.9.44	167,940	+	23,640	11	1,830,960	1,611,540	+	219,420	Ord. Stk.	17½	9½	12	Nil
	Buenos Ayres Great Southern	1,924	16.9.44	71,340	+	18,240	11	686,460	549,780	+	136,680	"	16	9½	10½	Nil
	Buenos Ayres Western	3,700	16.9.44	178,620	+	39,159	11	1,891,311	1,471,554	+	419,757	"	10½	6½	8½	Nil
	Central Argentine	Do.	16.9.44	29,487	—	169	11	340,638	346,641	—	6,003	Dfd.	4	3	4	Nil
	Cent. Uruguay of M. Video	972	16.9.44	29,487	—	169	11	340,638	346,641	—	6,003	Ord. Stk.	7½	4½	4½	Nil
	Costa Rica	262	July, 1944	28,322	+	5,071	4	28,322	23,251	+	5,071	Stk.	16	12½	16	Nil
	Dorada	70	Aug., 1944	29,875	+	4,645	35	207,565	172,147	+	35,418	1 Mt. Deb.	96	92	100½	£5.195
	Entre Rios	808	16.9.44	23,844	—	1,784	11	250,608	225,804	+	24,804	Ord. Stk.	9	5½	5	Nil
	Great Western of Brazil	1,030	16.9.44	18,700	—	2,600	37	786,600	577,100	+	209,500	Ord. Sh.	59.9	24.4	32.6	Nil
	International of Cl. Amer.	794	July, 1944	\$577,243	—	\$3,278	30	\$4,777,756	\$4,485,160	+	\$292,596	"	—	—	—	—
	Interoceanic of Mexico	22½	Aug., 1944	9,355	+	2,070	35	64,295	68,425	—	4,130	1st Pref.	23	14	1	Nil
	La Guaira & Caracas	1,918	16.9.44	59,597	+	24,036	37	1,714,958	1,269,102	+	445,856	5 p.c. Deb.	90	80	79	Nil
	Leopoldina	483	14.9.44	ps. 353,900	—	ps. 7,600	11	ps. 5,004,600	ps. 4,377,400	+	ps. 627,200	Ord. Stk.	7½	4	5	Nil
	Mexican	319	July, 1944	18,039	—	1,585	4	18,039	16,454	+	1,585	Ord. Stk.	14	8	8	Nil
	Midland Uruguay	382	15.9.44	6,187	—	490	37	132,243	108,825	+	23,418	Ord. Sh.	83.9	71.3	68.9	£3.111
	Nitrate	274	15.9.44	\$56,521	—	\$6,311	11	\$629,458	\$606,870	+	\$22,588	Pr. Li. Stk.	75	51½	72	Nil
	Paraguay Central	1,059	Aug., 1944	127,085	—	20,162	9	245,725	206,941	+	33,784	Pref.	17½	10½	11	Nil
	Peruvian Corporation	153½	June, 1944	c 80,000	—	c 26,000	52	c 1,484,000	c 1,243,000	+	c 241,000	"	—	—	—	—
	Salvador	100	16.9.44	53,084	+	3,440	11	533,643	567,591	—	33,948	Ord. Stk.	71	57	48	£4.34
	San Paulo	156	Aug., 1944	3,720	—	2,495	9	5,535	9,730	—	4,195	Ord. Sh.	37.6	20.7	17.6	3
	Talca	1301	16.9.44	53,084	+	3,440	11	533,643	567,591	—	33,948	Ord. Stk.	—	—	—	—
	United of Havana	73	July, 1944	1,438	+	51	4	1,438	1,387	+	51	"	—	—	—	—
	Uruguay Northern	Do.	16.9.44	53,084	+	3,440	11	533,643	567,591	—	33,948	Ord. Stk.	—	—	—	—
Canada	Canadian Pacific	17,018	14.9.44	1,260,600	+	62,200	37	44,578,800	40,301,600	+	4,277,200	Ord. Stk.	18	13½	15	3½
	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.
India	Barsi Light	202	July, 1944	24,878	—	3,817	17	100,365	91,770	+	8,595	Ord. Stk.	—	—	—	—
	Bengal-Nagpur	3,267	July, 1944	988,650	—	17,775	17	4,183,275	4,235,325	—	52,050	Ord. Stk.	104½	101½	—	—
	Madras & Southern Mahratta	2,939	Mar., 1944	358,125	—	7,925	52	10,447,866	8,913,924	+	1,533,942	"	—	—	—	—
	South Indian	2,349	20.12.43	199,410	+	24,449	37	5,321,558	4,562,445	+	750,113	"	—	—	—	—
Various	Egyptian Delta	607	20.8.44	19,270	+	4,226	20	259,759	197,214	+	62,545	Prf. Sh.	6½	2½	4	Nil
	Manila	277	July, 1944	19,178	—	15,047	4	19,178	34,225	—	15,047	B. Deb.	45	32	61½	Nil
	Midland of W. Australia	1,900	24.6.44	246,920	—	7,585	4	—	—	—	—	Inc. Deb.	101	93	99½	£40.5
	Nigerian	13,291	19.8.44	842,234	—	1,952	19	17,520,691	16,594,138	+	926,483	"	—	—	—	—
	South Africa	4,774	April, 1944	1,188,999	—	212,162	—	—	—	—	—	—	—	—	—	—
	Victoria	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.	Do.

Note. Yields are based on the approximate current price and are within a fraction of ½%. Argentine traffic is given in sterling calculated @ 16½ pesos to the £.
† Receipts are calculated @ 1s. 6d. to the rupee